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* Illustrated Articles.

THE demand from new subscribers for back numbers of the INDIA RUBBER WORLD having exhausted our reserves for that purpose, the publishers will be glad to pay 20 cents each for copies of the following numbers, viz.: December, 1889, and February, 1890.

The Shortage in the Rubber Crop.

THE whole world has heard this year of the shortage of the Brazilian rubber crop, no doubt with the impression that the falling off has been phenomenal. Such, however, has not been the case. Our advices from Para show that the receipts of rubber there for the year ended with June were 33,682,000 pounds—a figure only once exceeded in a single year, which was 1888-89. The average export of rubber from Para for six years previous was a little over 30,000,000 pounds annually. The last year has shown a shortage only in comparison with the yield of a phenomenal season. The most striking fact in this connection is the increase in the demand for rubber. The Para yield has grown steadily from about 24,000,000 pounds, in 1884, and because the annual ratio of increase was not maintained in the year just closed the price of the commodity has nearly doubled in the world's markets.

It is evident that the business of rubber gathering is not keeping pace with the progress of the world's manufacturing industries. Rubber manufacturers have become a necessity to millions of people, and the lazy, primitive methods of gathering the gum must give way speedily to the invasion of the South-American forests under more intelligent auspices. Next must follow soon the culture of rubber. Before many decades manufacturers will no more think of depending wholly upon native supplies of rubber than the coffee merchants would think of getting their orders filled from wild coffee plants. Since the United States has begun to lead the world in the manufacture of rubber it would only be a fitting thing for some of her capitalists to undertake the development of the supply of crude gum.

Rubber Interests at the World's Fair.

FEW business men doubt that the World's Fair in 1893 will be a fact, and a very large one. Chicago, in spite of her bickerings and the grab for "boodle" that her city officials are indulging in, will, without doubt, arouse herself and make it a grand success. Nor will the business men of other cities, particularly the manufacturers, allow such an opportunity to pass without displaying there the goods which they manufacture. We cannot but wonder at this moment what the rubber interests of the country are planning for this great exhibition. It will be remembered that the rubber men of Chicago pledged themselves for \$10,700 towards the fair. It will also be remembered that there are numbers of thriving manufactories in the West that are certain to have good exhibits at this fair. Certainly, also, numbers of the Eastern concerns will send their goods there for exhibition. This will touch all lines of goods, mechanical, druggist sundries, boots and shoes, clothing and hard rubber goods.

Now, these being the facts, why is it not the wise thing for the rubber manufacturers—particularly as they are, through their associations, closer to-day than they have been for some time—why is it not the wise thing for them to appoint a committee to secure a space which shall be

devoted entirely to rubber exhibits? If each manufacturer goes in alone and takes a small space wherever it is given him, the general effect of the exhibition will be *nil*. So many larger exhibits will overshadow the goods that are shown that the spaces might just as well have been left vacant. On the contrary, if some magnificent exhibit, made up by all the various rubber companies in the country, arranged with taste and skill, can be gotten together, there is no question but that its effect will be most beneficial for the entire rubber business.

We make in this country more rubber goods than are made in any one country in the world, and we want the foreign visitors to know this. If the exhibits are scattered around and swamped by a vast number of greater ones, possible customers at the fair will have no chance to realize this. If, on the contrary, the whole rubber contingent, as one man, massed their push and intelligence and taste and enterprise upon the finest exhibit of rubber goods that has ever been given, there is no question but what it can be made wonderfully to the advantage of the rubber trade.

The Importance of the Buyer.

SO much has been written concerning salesmen and their aptitude and methods of disposing of goods, that we sometimes wonder why so little attention is paid to elucidating the skillfulness of the buyer. It is a common remark among commercial travellers that they would like to be the buyer for some large house, or the purchasing agent of some great corporation. The thought that actuates this wish is that a position of this kind is a sinecure, and that ordinary talent and very little practical experience are needed to fully fit a man to fill a position of this sort. Any one who has been, even in a small way, a buyer for either a manufacturing house or a large store, can easily appreciate how false a notion this is.

Suppose, for instance, we wish to picture the ideal buyer for a large rubber manufactory. There are few men who would not accept such a position, and yet how few there are that would come up to this ideal: A buyer of this kind must be a man, for example, who has a knowledge of cloth, who is a good judge of texture and color, who knows the value of the goods, as well as the market price, and who can discriminate between makes that appear to be good and makes that are good. Of machinery, also, he must know considerable, for it is from him that the contracts for all new machines will emanate, and it is he alone who will be blamed if the best possible terms are not made. Then, too, comes the knowledge of the various adulterants that go into the rubber compounds. From one manufacturer and another he will receive samples that appear almost identical, and yet the difference in price will show him that there must be a great difference between them. It is his duty to learn what is best fitted for his work, to be able to tell from sample whether the goods are just such as he wants. He must have a wide knowledge of men, in order to know in whom he can put reliance, and whom he must doubt.

When it comes to the purchasing of the crude rubber, there is need of the very best mental furnishing. A man fully fitted for this part of the purchasing should be one who is not only, to a certain extent, naturally an acute statistician, but a man who can read between the lines, and from even meagre information can cull knowledge that is to be of great advantage to him in his buying. He must be able to prophesy, to an extent, upon the rise or fall of rubber, and to know the reasons for his prophecy. His work will be, in a measure, guess-work, but it must be none the less keen and skillful for that reason. Many times in his hands will be placed a responsibility, which, if used unwisely, will result in most disastrous loss, or on the other hand, if used wisely, will greatly benefit the house for which he purchases.

There are few shrewd buyers in this country but who are constantly on the *qui vive* for new information. They are, as we have seen them, men almost tireless in their search for knowledge in the special lines that interest them; and in the care with which they sift information, gathering from a large amount of chaff a few grains of wheat.

In the store, also, there must be an experience and mental furnishing which was not called for a few years ago. Any one who travels about among the host of rubber buyers in the country to-day, will find scores of men who are good judges of vulcanized rubber, who can tell a good compound almost at once, who are good judges of values in rubber goods, and who are, in their special lines, genuine experts.

The peculiar faculty that India rubber has for taking in almost anything as an adulterant, is responsible for the skill of these men. A few years ago rubber was rubber, no matter how adulterated or how manufactured; to-day, to the buyer of rubber goods, rubber is not always rubber. The tests that they use in determining the value of the coating stock in rubber clothing; of the friction in belting; of sole, heel, and upper in shoes, are many times unique, and sometimes faulty, but as a rule they tell something to the buyer, and he is better enabled to do justice to those whose money he handles.

The time will come, doubtless, when special brands of goods will mean a certain amount of rubber; indeed it would be injustice to many of the conscientious and successful rubber manufacturers to deny that the time has already come. There are brands of goods in all lines about which there is no question. The buyer accepts the firm name as a guaranty of excellence, and buys and sells upon it. This is as it should be; while it is to the advantage of the rubber trade that every purchaser of rubber goods should know what he is buying, and be so fully furnished that he cannot be cheated, the ideal condition is that in which all brands mean a certain purity of rubber from one year's end to another.

"Puck" is nothing if not original. Many of his inventions have touched upon the uses of rubber. One of the latest is what is called "*Puck's* Anti-going-out-between-the-acts opera glasses." The illustration that in itself de-

scribes this article with the long name shows a gentleman whose aspect is a bit anxious, and whose nose is decidedly red, who has a pair of opera glasses and is looking off interestedly into space. The handle of the glasses is enlarged and ends in a rubber bulb. From this bulb is a tiny tube, which enters the mouth of the party who owns the article. The inference is that it is full of some soothing mixture, and that while assuming to look at the beauties of the curtain, or at the bald heads in the front row, the gentleman quenches his thirst, and thus keeps from being disagreeable in crowding by a seat full of ladies or gentlemen. Whether this most excellent thing has been patented we do not know, but if it is, we would like to furnish the rubber bulbs for its use.

Does it Pay to Advertise?

THIS is a natural question for a prudent business man to ask, and a very proper one. Oftener than any other subject it lies at the root of success or failure in business. We do not remember to have seen a more striking answer to this question than that given by a firm who advertise in THE INDIA RUBBER WORLD, which we print in fac-simile on another page of this issue. It seems to us to leave little room for argument. The object of advertising is to attract the attention of those with whom one wishes to do business. If one, therefore, has for sale an article for which there is a demand, and chooses a medium which goes directly to the people among whom that demand exists, success is apt to be limited only by the amount of the advertising ordered. But turn to the fac-simile letter and read that.

Letters to The Editor.

EDITOR INDIA RUBBER WORLD: Having recently been pursuing some investigation in the way of fireproof paint, it occurs to me to write to you, suggesting that it might be a good thing for rubber boot and shoe manufacturers to get hold of some good grade of fireproof paint to cover the maple last with. It seems to me, from some of the samples of paint that I have tested, that it could be used to great advantage, and would prevent the wood from carbonizing and make the lasts much more lasting. Very truly,

M. M.

EDITOR INDIA-RUBBER WORLD: I notice in a recent number of your paper a statement to the effect that all of the fire-hose recently awarded by the city of Trenton to various Trenton manufacturers was offered to the Trenton Rubber Co., as represented by Mr. F. A. Magowan, but that he refused to take more than his share, as he wished other hose to come into competition with his. This statement is altogether wrong, as any one of the Trenton manufacturers, including Mr. Magowan himself, will no doubt tell you. We have no doubt that you will take pleasure in correcting this, as we Trentonians are a little sensitive about our ability to get there. Very truly,

TRENTON MANUFACTURER.

H. C. PEARSON, EDITOR: Speaking of vulcanization by freezing, it may perhaps interest you to know that the old

Beverly Rubber Co. claim this as one of their processes of years ago, when sulphur patents were in force. My recollection is that it was about the year 1857 that they made a claim for this process, but that it was ever used practically I cannot assert. There certainly is something in the freezing process, if not for the manufacturer at least for the seller of crude gum. For example, if hams of Pará rubber are frozen they will take on a hardness and density that gives them every appearance of being old fine Pará, and even if they are new crop rubber the vesicles will be so even after the frost has come out. The only way to detect this frozen rubber is to soak it in hot water, when, if it is new crop, it will become very spongy and absorb a great deal of water, and have an entirely different look from the old gum. Very truly,

D.

PORTLAND, OREGON, July 31, 1890.

EDITOR INDIA-RUBBER WORLD: As we have just opened up business in this city, in the line of mill and fire department supplies, including rubber goods, we think it necessary that we should keep ourselves posted as to doings in the rubber business in the East, and do not think there is a better way than to subscribe for your paper. Kindly put us on your subscription list; send us last edition and invoice for the year. Yours very truly,

MCILROY & MOORE.

NEW ROAD, LOWER EDMONTON, }
ENGLAND, July 8, 1890. }

EDITOR INDIA-RUBBER WORLD: Kindly let your subscribers have *full and carefully prepared index* of Volume I. Such a book as the INDIA-RUBBER WORLD loses half its value for the want of an index.

I am, dear sir, yours truly,

JOSEPH THOS. WICKS.

[Such an index is in progress, to be supplied to our subscribers at the end of the first year of publication.—EDITOR.]

GISLAVED, SWEDEN, June, 1890.

EDITOR INDIA RUBBER WORLD: Please send by first steamer your paper for the year, and find payment enclosed. I am about to start a rubber mill in this country, but am troubled in making a good rubber varnish. I have the oil, the resin and the sulphur all right, but the varnish is not a success. If you know what would be best to use to make it dry nicely, will you be kind enough to give me the information? Very truly yours,

W. G.

[As we do not know what the gentleman's formula is, we can hardly tell him exactly what the trouble is with the varnish. It is very possible that he has an American formula, and in that case he may have to adapt it exactly as the varnishes for one or two English factories were adapted from American formulæ; that is, to use more sulphur. If he is not an expert oil boiler, no matter how minute the directions may be for preparing a varnish, he will not be very successful at it, except through a great many experiments. There are factories here in America where varnishes are made without a particle of sulphur. We remember one in particular where only the oil is used in the boiling until it is reduced to a liver, and what little sulphur is used is put in the last thing. This, however, is not the rule. We would therefore say to "W. G." that he had perhaps better add a little sugar of lead and a little more sulphur, and try again.—EDITOR.]

Another Brazilian Railway—Suggestions for the Rubber Trade, and for General Commerce.

[Written for THE INDIA RUBBER WORLD.]

BY COURTENAY DE KALB.

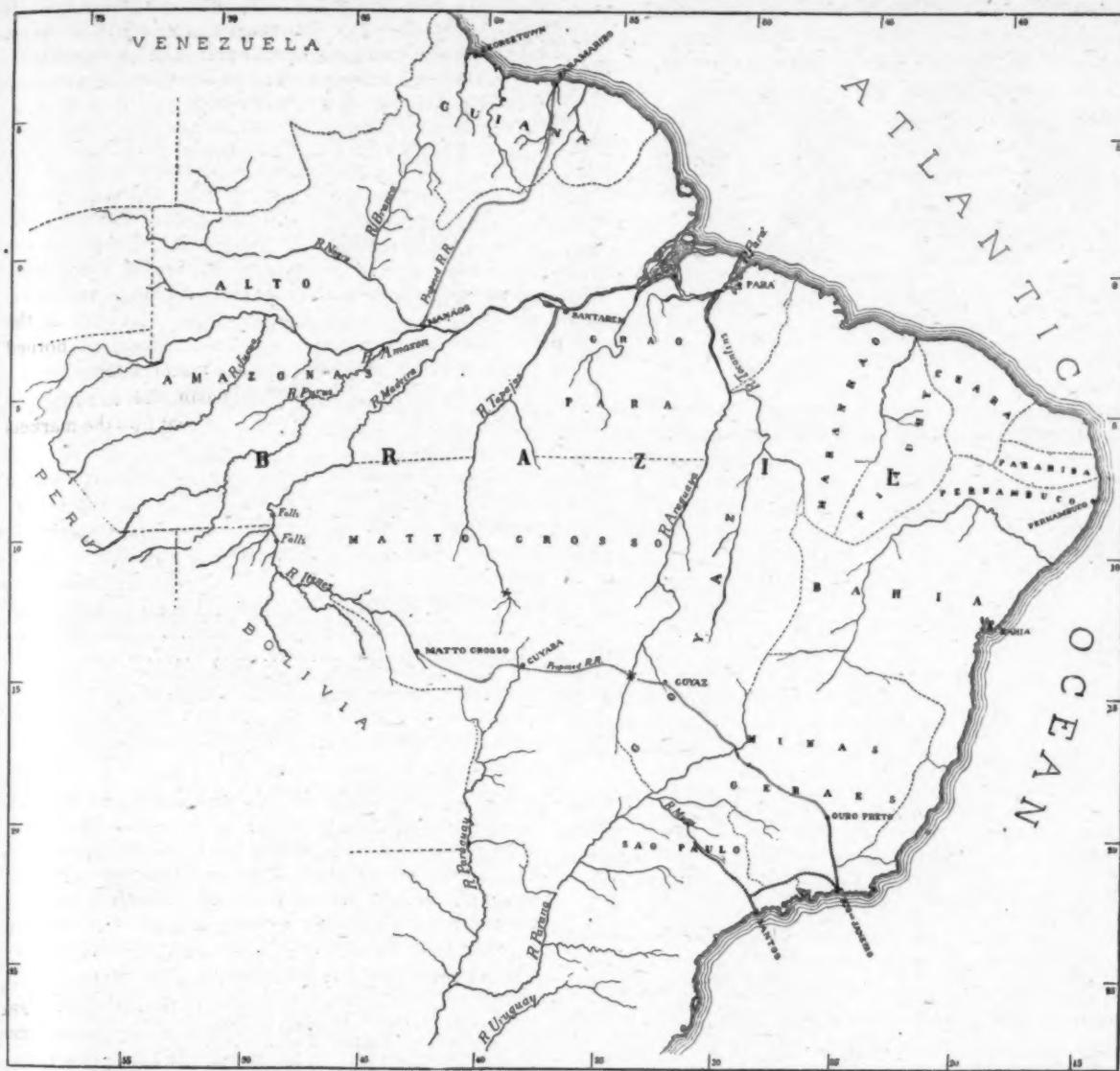
IT was currently believed not many decades ago, that because the valleys of the Mississippi and the Ohio possessed natural outlets through the great rivers which drain them, the bulk of the carrying trade which might develop there must permanently and forever follow those water routes to the sea. We now behold a half-dozen great lines of railway frequently embarrassed in their efforts to handle the freight from these same valleys, while long-distance shipments of cargo by way of their noble rivers have declined to a minimum.

The physical features in middle and southwestern Brazil present problems not unlike those which confronted the pioneers of our own Middle States. There is the Province of Goyaz, a long belt of high plateau and forest, stretching north and south, landlocked except for the Rio Tocantins, which drains the upper portion, and for the Rio Araguaya, which forms its northwestern boundary. West of Goyaz is the enormous Province of Matto-Grosso, extending from the seventh degree to the twenty-second degree of south latitude, and from the fifty-first to the sixty-fifth degree of west longitude, roughly equivalent to a square whose sides are nearly a thousand miles in length. This province can be entered from the north by the Rios Araguaya, Tapajós, and Madeira, the two former rivers reaching far into the heart of the country. The natural outlet of this province, however, is the great Rio Paraguay and its northeastern tributary, the Rio São Lourenço, which opens up an avenue into the extensive central plateau of Matto-Grosso. The first explorers entered from the south, and planted mission stations along these rivers, and ever since that period the commerce of Matto-Grosso has followed the original route. The Brazilian Government long ago chartered a company which runs a line of large steamers from Buenos Ayres to Corumbá, whence a line of smaller steamers ascends 300 miles farther to the city of Cuyabá, and the prevalent conviction that river navigation offers the only means for developing the resources of this country is clearly shown by the fact that, of all the existing railway projects in Brazil, none yet has proposed competing for the business of Goyaz and Matto-Grosso.

The commercial problem involved here can be stated in equivalent terms by asking whether the people of the United States in 1835 should have deemed it expedient that henceforth the business of St. Louis and Cincinnati should be with New Orleans rather than with New York? In other words, should Matto-Grosso and Goyaz contribute to the prosperity of Montevideo and Buenos Ayres, or should the provinces of Brazil mutually enrich each other by carrying the products of the mine, the ranch, and the plantation, to the sea, by means of railroads traversing territory under a single flag, and subject to a single code of laws? As is always the case when an extensive region depends upon water communication, the development of

these two interior provinces has been excessively slow, in spite of their well-known richness. Matto-Grosso is famous in the annals of mining, the gravel of her rivers having yielded immense quantities of gold and diamonds. Goyaz also has contributed her share of similar treasure, but mining has now ceased, since the shallow surface deposits have been exhausted, and no effort has been made to work the gold veins from which the precious metal came. An occasional traveller, visiting these remote districts, brings back accounts of promising out-crops of gold-bearing quartz, and the knowledge of large beds of iron ore, of rock salt, and of saltpetre, is a century old. Shipments of diamonds are still made from Matto-Grosso, and this is in fact the basis of a large part of the commerce of the province. But the great grassy plains abound in horned cattle, and northward, nearer the equator, commence the endless forests of the Amazonian basin, rich in rubber, of which not an ounce has ever yet been sent into the markets of the world.

A system of railways to develop this country has a closer connection with the recently proposed route from Paramaribo to Manáos, than may upon first thought appear, and it is fraught with interest to the rubber trade. The conversion of Manáos into a railway and telegraph terminus would shift the centre of the rubber export business nearer the present areas of production, but for some time to come would not sensibly enlarge the output. Meantime, judging from recent indications, the demand for rubber will continue to increase, and the rubber orchards, which are likely to be planted in eastern Peru and elsewhere, will not yet be yielding sufficient to affect the market. Of course it is not really to be seriously presumed that the rubber market will experience an embarrassing shortage for more than one or two seasons at most, for the stimulus of higher prices will result in opening paths into the trackless wildernesses nearer the head waters of the southern tributaries of the Amazon, where vast resources of this valued gum are to be had for the gathering. Such a system of railways in Matto-Grosso and Goyaz would be the most efficient means of securing this additional supply, while it would at the same time open up a rich region to the miner, the cattle raiser, and the planter, offer direct and rapid communication with Europe through Rio de Janeiro, and swell the trade of Pará, which port would be the natural recipient of the productions of the upper part of these provinces. There is already a railroad from São Paulo to Araraquara, and another to Ribeiro Preto, at almost equal distances from the coast. From either terminus to Cuyabá, a city of 15,000 inhabitants, is about 500 miles in an air line, and by swinging to the northward to reach the city of Goyaz, the amount of road to be constructed would be increased to about 900 miles. On the route from Goyaz to Cuyabá the road would cross the head of navigation on the Rio Araguaya, the chief tributary of the Rio Tocantins, by means of which direct connection could be established with Pará. From Cuyabá it is said to be only twenty miles to the head of navigation on the Rio Arinos, a tributary of the Rio Tapajós, which latter, after traversing a region reported to



DRAWN AND ENGRAVED FOR THE INDIA RUBBER WORLD.

be rich in rubber, and to possess beds of coal, and deposits of auriferous gravel, enters the Amazon at Santarém, where is established a small colony of settlers from the Southern United States. The road could, and should, be pushed westward to the city of Matto-Grosso. This done, a great part of the advantage hoped for by the projectors of the ill-fated enterprise of building a road around the Falls of the Madeira, will have been gained. The city of Matto-Grosso is situated on the Rio Guaporé, or Itenes, the eastern branch of the Rio Madeira, which is itself navigable, and receives from the southwest three other navigable streams, the Rios Baures, San Miguel, and Mamoré, which would afford access to the vast plains of Mojos and Guarayos in the Bolivian States of El Beni and Santa Cruz, which form at present as perfectly a land-locked region as exists upon the globe.

A variation upon this project would be to build westward from the present railway terminus at Ouro Preto, in the province of Minas Geraes, to Goyaz, and thence westward as before. This might prove advantageous by reason of the great mineral wealth of the country which the road would pass through between Ouro Preto and Goyaz. The charter of the Dom Pedro II. Railway Company, of which the line to Ouro Preto is a part, provides for the extension of its system northward through the Province of Bahia to the head of navigation on the Rio São Francisco, and then westward through the provinces of Pernambuco, Piahy, Maranhão and the northern part of Goyaz to the Rio Tocantins, not far from its junction with the Rio Araguaia. This plan, as will be seen at once, does not contemplate developing the great interior provinces, but is intended to link together the coast regions, and to open

an internal communication with Pará. This would require the construction of an enormous length of road, and would not be likely for many years to serve interests of the magnitude which would be created by entering the Mediterranean States of Goyaz and Matto-Grosso.

The centralizing influence of this series of roads, aiding so materially to maintain the integrity of the new republic, would undoubtedly win the favor of the government to such an extent that it would grant valuable concessions to the company which would undertake the enterprise. Strengthened by a subvention in the form of land grants the company would be in a position to pursue a policy making a limited but permanent settlement of the best class of hard working emigrants upon its lands a natural outgrowth of the construction of the line. These would constitute a nucleus around which, as business developed through the new and improved facilities, would necessarily gather the accretions of a large and prosperous population. The climate of these interior plateaus is unusually healthy. The severe bilious fevers, so common in many tropical countries, are never experienced unless induced by reckless exposure and by disregard of those sanitary precautions which are as needful for the preservation of health and life in North as in South America. Terciana, or ague, is common among the natives, as it is in fact on the west coast of the continent, which latter region is naturally one of the healthiest on the face of the earth. Avoidance of fevers is merely a question of habits of life and cleanliness of surroundings. Whoever can live in Arkansas or Texas can live in Matto-Grosso and Goyaz.

In regard to constructive difficulties it may be said the most expensive portion of the proposed line would be that between Goyaz and whichever existing railway terminus might be chosen. This section is traversed by low ranges of mountains, which would necessitate occasional heavy grades and many cuts and fills. Westward from Goyaz, however, there are broad stretches of level grassy plains, where construction would be reduced to the minimum of expense. The average cost per mile would thus be brought down to a very reasonable figure.

Recent Para Advices.

PARA, July 22, 1890.

THE rubber crop of 1889-90 closed in June with a total of 15,310 tons* against 15,970 tons for the crop of 1888-89, showing therefore a shortage of 660 tons, divided as follows:

Island Rubber.....	641 tons.
Upriver rubber.....	22 tons.
Total.....	663 tons.
Less surplus in arrivals from Peru.....	3 tons.
Total.....	660 tons.

Our market has kept firm since the beginning of the month, with general demand. The prices, which then were 3100@2050 reis for Island rubber, fine and coarse, respectively, declined to 3000@2000 reis, owing to the constant rise in exchange. The

* "Ton," as here used, means 1000 kilograms of 22 pounds = 2200 pounds.

sterling cost of rubber was maintained, being even in some instances dearer. Yesterday about 22 tons Purús rubber were sold at 3150@2150, and for Island rubber 3150@2050 was offered freely, exchange closing weaker. These prices are very firm, the stock on sale being next to nothing.

The arrivals to date are 460 tons, whereof 77 tons are Caucho. The receipts from Peru have been heavier than it was expected, which may perhaps make the total arrivals for this month larger than those of July, 1889 (670 tons). It is expected that the arrivals for August will show a decrease as compared with same month last year, the overflow of the Amazon having retarded somewhat the gathering. Owing to this the supply of upriver rubber will continue to be small for some time to come.

RUBBER STATISTICS.

	Kilograms.
July 1. Stock on hand.....	152,000
July 22. Receipts this month to date,	
Caucho, 77,000; rubber, 383,000.....	460,000 612,000

Exported to Europe.

July 1. Per Amazonense.....	75,000
July 17. Per Lanfranc.....	82,000 157,000

Exported to the United States.

July 7. Per Augustine.....	121,000
July 22. Per Portaense.....	194,000 315,000 472,000

Remaining in stock	140,000
Stock in first hands, 65,000 kilograms.	
Stock in second hands, 75,000 kilograms.	

J. VIANNA & Co.

PARA, July 28, 1890.

The prices of 3050@2050 for fine and coarse Island, and 3150@2150 for Amazon rubber, have been maintained with more or less demand, according to the exchange fluctuations. The entries this month will not exceed those of July, 1889, unless the steamer *Conde d'Eu* from Purús should arrive before the 31st inst., this steamer possibly bringing 80,000 kilograms.

In the river Purús there are this year the steamer *America*, built on purpose for the navigation of the river, and the steam launch *Sigueira Mendes*, both running above the Falls. The rubber gathered in the high Purús will therefore arrive earlier to market. Also the steamer *Marary* (ex *Cagueta*), which draws very little water, is navigating the river Juruá this year, thus facilitating the coming down of the rubber from high Juruá. It is possible that owing to these new means of transport the arrivals for the next few months will be nearly the same as those of the corresponding time last year, the more so, as from the Islands they are sending all the rubber that they can make ready, including the coarse rubber, which was generally sent to market later on in past years, the shipments of this grade showing for the past three months an excess over those of 1889. The general opinion is that altogether the next upriver crop will not be larger than the last one, as it began later, and besides there is a smaller number of gatherers, and many of the rubber trees have been overworked. In the Islands there are as yet no signs of an increase, and considering the small stock of fine rubber in the world, it is probable that this grade will advance shortly in the consuming markets, the lower grades benefiting thereby as a natural consequence.

Arrivals to date (since July 1st) 615 tons. The bearer (steamer *Alliance*) takes 89 tons.

Exchange—on London—bank bills 23¼; commercial, 23¼.

J. VIANNA & Co.

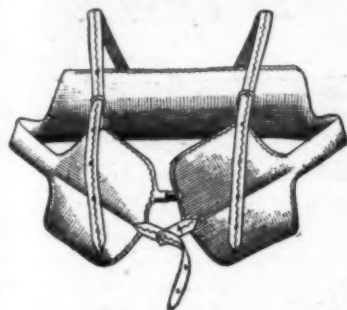
New Goods in the Market.

TO MANUFACTURERS AND PATENTEES:

It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

THERE have been in the past all sorts and styles and kinds of life preservers. The most of them have been bulky and troublesome, and unless adjusted right were as likely to

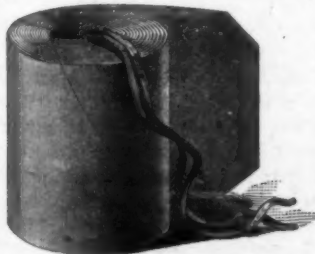


drown a person as they were to save their lives. The Ideal Life Preserver, however, seems to have done away with the outs that were in the old styles, and have hit the popular taste exactly. We present herewith a cut of it. It is very easily adjusted and has been found to be of great help to those who are learning to swim. Not only do

those who go to the beach in summer use it, but it is to be found in the luggage of ocean travellers and in the possession of a great many yachtsmen. Manufactured by the Ideal Rubber Co., Nos. 1-13 Adams Street, Brooklyn, N. Y.

—The "Trojan," a rubber shoe for lumbermen, and heavy wear, is being brought forward by the Boston Rubber Shoe Co., and will undoubtedly have a large sale during the coming season. It is, of course, very heavy in its get up, and the vamp comes up well on the instep. It is expected that it will be placed on the list shortly.

—Dealers in druggists' supplies who have not yet handled Dr. Martin's Strong Elastic Bandages no doubt will be interested in learning something of them.

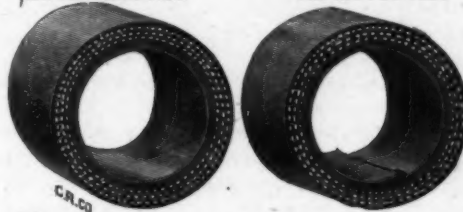


They are used for the treatment, curative and palliative, of varicose and other ulcers, chronic eczema of the leg, diseases, injuries and relaxations of joints, varicose veins, œdema, and anasarca. A large number of different sizes are made, to suit the bandages to as many different cases as possible. Owing to the continued advance in crude rubber there has been an increase in the price of these bandages, but it is stated that the same quality will be maintained as before. Manufactured by Codman & Shurtleff, Boston, Mass.

—We illustrate here two sections of rubber garden hose, the one representing the new seamless tube of the Cleveland Rubber Co., the other being the ordinary lapped tube kind. The

NEW SEAMLESS TUBE

OLD LAPPED TUBE

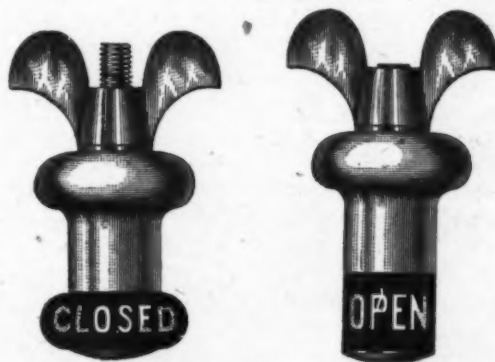


claims for this improvement in rubber hose are as follows: It does away entirely with the liability of an opening of a seam because it is made entirely without seam, much in the same way that lead pipe is made. It is said not to sweat or burst and to be free from pin-holes, and to stand a great amount of wear and tear. This has been made the subject of letters patent, which have been issued to the manufacturers, the Cleveland Rubber Co., Cleveland, Ohio.

—A convenient and useful article of rubber is the Watch Protector, manufactured by Samuel C. Watts, No. 2197 Third Avenue, of which a representation is given in the accompanying cut. Mr. Watts has received testimonials from the best of sources, reporting successful tests in wearing of his invention.



—The Adjustable Bottle Stopper, illustrated on this page, consists primarily of a porcelain knob having a hole through the centre. To the lower end of the knob is attached a rubber cylinder, and through both knob and cylinder runs a flat-head galvanized bolt having a nickel-plated thumb-screw on the threaded end. Between the thumb-screw and the porcelain



knob is a small iron washer. The stopper is introduced into the neck of a bottle, and by tightening up the thumb-screw the rubber is expanded and brought in contact with the bottle, with the effect of sealing it air-tight. This stopper will fit any ordinary pint or quart bottle. It is recommended especially for champagne, apollinaris and carbonated liquids, which it prevents from effervescing. Price per dozen, \$1.75; extra rubber cushions, per dozen, 50 cents, with discount to the trade. Manufactured by Edwin W. Abbe, New Britain, Conn.

—The Waterbury Rubber Co. are meeting with great success in the sale of their Sphincter grip armored hose. This hose cannot be kinked, and is made in all sizes from the little tiny affair 1-64 inch in diameter to the heavy suction which requires

an armor $\frac{1}{8}$ inch thick. Paper and iron mills use a great deal of this hose, and the prosperity of these two trades is accurately gauged by the extent of their orders. Forty per cent. of the orders come from this source now. Exports are good, six large shipments having lately been made to South Africa, five to Sandwich Islands, fifteen to Australia, and what was surprising to all hands, one to Alaska. Hose with the armor on the inside is a late invention, and is a superior article in many respects.

—We illustrate herewith one of the Star Atomizers, for which the following strong points are claimed: The liquid container is made wholly of rubber and will readily expand when the air is forced in, thereby forming a continuous and steady spray which can be stopped by removing the finger



from the cut-off. The tips are so arranged that either fine or coarse sprays may be produced by the same one. The air tube, although made of metal, never gets in contact with the liquids used for spraying. The liquid tube, being made of soft rubber, is easily cleansed by stripping it through the fingers, no wire being needed. The illustration herewith illustrates the "No. 2 Combination." These goods are patented by George Kneuper, of New York, and are for sale by the Ideal Rubber Co., No. 11-13 Adams Street, Brooklyn.

—The "Climax" Tape, a cut of which is shown here, is a rubber tape which is used by all electrical companies for insulating joints and other exposed parts of telephone, telegraph



and electric light wires. It has been made for a number of years by the Boston Rubber Co., of Boston, Mass., and like its other goods, has gained for itself an excellent reputation. A tape, to be of value as an insulation, must be not only non-corrosive, but waterproof, and the large electrical companies

which have used this "Climax" Tape have found that its excellence in both these respects, and also its durability in resisting the weather make it of the utmost value. This "Climax" Tape is put up in half pound rolls, each one of which is packed in a box. It is usually cut in $\frac{1}{4}$ -inch width, but it will be furnished in any width that may be required. A sample of the "Climax" Tape will be sent to any electrical company sending a request to the Boston Rubber Shoe Co., Boston, Mass.

—A frequent annoyance in the use of belting is caused by the pulling apart of the belts where they are laced. The ordinary punch tears a hole through the belt, destroying the fibre or grain, and this is particularly true of rubber belts. The Earle Lace Hole Cutter makes a clean, smooth hole through



the heaviest sorts of belting, without injuring the fibre in the slightest degree. It cuts a hole through a thick belt, it is stated, as easily as through a thin one. It can be operated by a boy as easily as two men can do the same work with punch, hammer and block. By the use of the gauge a perfectly straight row of holes can be cut across the belt at any desired length from the end, thus guaranteeing that the belts will run absolutely true. The cutter is made of fine tool-steel, is not expensive, and is small enough to be sent by mail. Manufactured by Earle Brothers, No. 71 Maiden Lane, New York.

—The Boston Belting Co. are meeting with much success in supplying rubber covered rolls for paper-mill work, they now being used in almost all the larger mills in this country, and in many in Europe. The use of these rolls effects a great saving in felts, the latter lasting about half as long again when rubber is used. Rubber covered couch rolls for wet machines and for cylinder and for Harper fourdrinier machines are run without the felt, and will last many years. A light iron framework is covered with a soft rubber compound which makes this saving in felts and wires, besides the extra labor necessary on the old-fashioned wooden frames. The company are also large manufacturers of deckel straps, paper-makers' aprons, etc. The deckel straps are two belts running parallel with the wires between, in the paper machine, and which form the edge of the web. The sizes of these straps vary from $1 \times 1\frac{1}{2}$ to 2×2 inches and are seam-less. Rubber covered rollers are also used in squeezing liquids from yarns and fabrics in print and dye works, and in wool washing, leather splitting, unhairing and tobacco squeezing machines, etc.

MR. C. R. FIELD of the Habershaw Insulated Wire Company, New York, is on a business trip West.

Every-day Work in the Factory.

BY NICK R. AUGUR.

OF the many manufactories making rubber goods to-day a large proportion do more or less white work, and for this purpose use oxide of zinc. Of course the companies that use this in the largest proportion are the Druggists' Sundries men, whose goods are preferably white, and are supposed to be more pleasing to the eye and made with more regard to finish than many of the mechanical goods. The selection of the zinc used in work of this kind has a great deal to do in determining the fine finish that is secured. For example, a zinc that has a trace of lead in it, while it may look beautiful before it is vulcanized, is sure to give a mottled or cloudy appearance or a series of black streaks throughout the rubber compound. The only way to guard against this is to ship back a lot of zinc that contains this metal and buy a grade that is absolutely free from it. The manufacturers themselves, in many cases, claim not to have been able to discover the minute portion of lead that gave a bad result in rubber goods.

It has been asked why it is that certain brands of zinc will cake upon the rolls during mixing and cause a great deal of trouble, while others will become incorporated in the rubber and not trouble by clinging to the rolls. Our experience in this leads to the belief that it is due entirely to dampness in the zinc, and that it can be done away with by drying the oxide. Another reason why a damp lot of zinc should be dried out is because it is apt to be porous and full of blisters if used in work where blisters have the least chance to show themselves. In all cases where it is possible a separate mixing mill should be used for zinc work, as it is almost impossible to mix white stock on a mill that has had lead stock or lampblack stock run on it, as even a trace of the black will go far towards darkening a very considerable batch of the white. For white work that is moulded and cured in a steam heat, the moulds, as a rule, are dusted with French talc, the bulbs or hollow articles are themselves also very carefully dusted. This not only helps the whiteness of the goods, but prevents them from sticking to the mould. For white mould work that is cured in a press, a wash of rain-water and either Castile or soda soap is used. This prevents the rubber from adhering to the metal, and does not in any way darken the white surface. This is used in almost any rubber mill where mould work is done, and will be spoken of to the uninitiated as a "secret preparation." The secret, however, has long since departed, and we are not telling anything that should not be given away in thus publishing it.

Speaking of moulds and mould-work, for black work, very often the mould is dusted with plumbago, and it used to be the custom to dust a mould with golden sulphuret of antimony when red work was in progress. A better result is, however, obtained by using the soap preparation, and the moulds certainly remain in very much better condition. In spite of every precaution, moulds for bulbs and-for

other work will in time become caked by the preparation that is used to keep the rubber from adhering to the metal. When this caking gets so thick that it breaks off in portions it is necessary to clean them. A bulb mould is cleaned by placing it, a half at a time, in the chuck of a lathe, causing it to revolve evenly, and then cutting out the caking by running a sharp pointed knife through it. It is afterwards polished out with emery cloth and then wiped with a flannel rag. For various moulds different tools are in use for cleaning them, and every factory has its own.

Our London contemporary, the *India Rubber and Gutta Percha Trades Journal*, has something of a fling at the International Okonite Co., Limited, and gives a formula which it says one of the expert chemists in London obtained from an analysis of the okonite compound. The compound reads:

Rubber.....	49.60
Sulphur.....	5.30
Lampblack.....	3.20
Oxide of zinc.....	15.50
Litharge.....	26.30
Silica.....	.10

Now, we do not claim to know what the okonite compound is, but we would like to ask this expert if he thinks he has got the proportion of sulphur correct there, considering the fact that less sulphur is used in insulated wire than in almost any other compounds, unless it is dry heat compounds, and that the compounds are never vulcanized as hard as in ordinary soft rubber work. Is he sure that the 15.50 parts of oxide of zinc were not whiting? We would like to ask, also, if he did not find any trace of a peculiar gum that is used in toughening the okonite compound, and which in chemical analysis should make itself very evident.

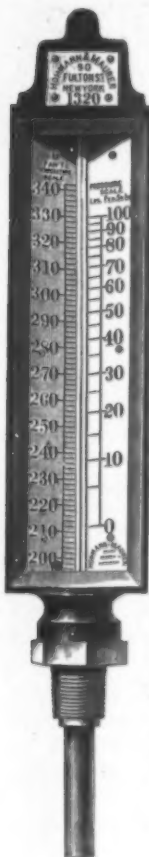
A line of rubber work that is overlooked when rubber factories are being catalogued is the manufacture of various kinds of porous plasters. It is perhaps not generally known that the gum that is at the base of these plasters is India-rubber, and that it is mixed upon regular rubber mixing rolls much in the way that any compound is, except for this difference, that the compound is exceedingly sticky, so much so that a "doctor" is used on the back roll to get it off when thoroughly compounded. The process of calendering is also similar to that in vogue in any regular rubber mill, and everything in fact is done except the curing, which of course is omitted, as a sticky result is what is wanted rather than the reverse. An old-fashioned formula for plasters, which is said to be used more or less, consists of

2 parts of massed rubber,	
1 " Burgundy pitch,	
1 " gum albanum.	

This compound in various factories varies considerably, and as is well known, different plasters have an 'active healing ingredient, and, aside from the regular compound, in many of them a peculiar sticky resin, known to the trade as friction resin, is added, to give the adhesiveness that is necessary in making the best of goods.

Standard Thermometric Steam Gauge.

THE successful vulcanization of either hard or soft rubber goods, depends in a great measure, upon the uniform maintenance of certain temperatures in a specified time and a



deviation from these temperatures, either higher or lower, is sure to result in injury to the quality of the goods being vulcanized; it is therefore very essential to the rubber manufacturer, that he have some trustworthy instrument for accurately determining this temperature. The Hohmann & Maurer Standard Thermometric Steam Gauge has been offered to supply this want, being intended to serve as a steam temperature and pressure indicator. The accompanying cut gives a perspective view of the Thermo Gauge, when complete for attachment and use. The scale on the left from 180° to 350° gives the reading of the temperature, and the scale on the right from 0 to 100, gives the pressure in pounds per square inch.

The steel chamber inclosing the mercury bath protects the delicate glass bulb from all pressure, and prevents its contact with moisture, sulphurous vapor or grease; this, with the solidity of the frame and the air-tight enclosure of the scales, render it a most serviceable gauge. As a Steam Pressure Indicator it is pronounced by engineers to be better than the regular steam gauge, for the reason that it never varies, which all spring gauges do.

It is heat and not pressure that is absolutely essential to vulcanizing; therefore the necessity of an accurate and reliable temperature indicator, by which the heat can be regulated to a degree. The manufacturers offer to send one of their instruments to any responsible manufacturer.

"Rubber Business in New Brunswick."

ST. JOHN, N. B., July 30, 1890.

EDITOR INDIA RUBBER WORLD: We wish to correct a statement made in your July issue to the effect that our establishment is not "the only exclusive rubber store in the Lower Provinces," the contradiction being made by the late firm of Estey & Alwood, mill supply goods and general dealers of St. John. Now, we can prove to your satisfaction that we are the only exclusive rubber store in the City of St. John and Lower Provinces of Canada. Our business was commenced *four* years ago, our specialties being rubber goods *alone*. Even supposing Estey & Alwood were right in stating that your remarks were not correct, we can claim more right to the title of being the only rubber store in the Provinces than ever, as the firm of Estey & Alwood is now out of business, as you will see from the enclosed newspaper notice of their assignment. This was written with a view to injuring our business, and in justice to ourselves we ask you to publish this in your August number. Since first starting in business our claim has been and truthfully so, that we are the only store making a specialty of rubber goods in the Maritime Provinces. We admire your paper, and knowing you will see fair play, ask you to publish this with our

signature attached. The firm when in business carried a stock of oils, hardware and mill supplies, while we sell only rubber goods. Yours very truly,

F. W. & W. H. MULLIN,
American Rubber Store.

ST. JOHN, N. B., July 24, 1890.

EDITOR INDIA RUBBER WORLD: You will have heard perhaps that the firm of Estey, Alwood & Co., has been dissolved. The business will be continued by Messrs. Estey & Co. as selling agents. Our Mr. Estey has had over twenty-eight years experience at the business, commencing in 1862 as an office boy with the old concern. He has seen the rubber business develop from limited proportions and variety, and has seen the great establishments in New York grow from their smaller size. Please find enclosed subscription for your valuable paper. It is a most valuable aid for all rubber dealers, and we do not see how the trade ever got along without it. Yours, respectfully,

ESTEY & CO.

An Improved Hydraulic Press.

THE Press illustrated herewith is made by the Boomer & Boschert Press Co., of Syracuse, N. Y., and is described by them as being very heavy, rigid, and well adapted for the work. The heads and bases are cast in the form of a box with metal so disposed as to secure the greatest strength. The steam plates



are very heavy and cored in such a way that there is a perfect distribution of steam and no "dead" places. The follower on which the lower plate rests is very deep, of box shape and braced in such a way as to avoid springing when under heavy pressure. Attached to the follower and dependent therefrom are four screws having on them nuts upon which are cast wheels suitable for receiving an endless chain.

These nuts rest on lugs or ears cast on the hydraulic cylinders, and by running these nuts up or down the opening for moulds between the steam plates can be varied as desired. It will be seen this is much more quickly operated and will hold better than a clamp around the ram as usually constructed. The rams and cylinders are so made that they can be packed very easily. This firm say they can furnish presses with one, two or more cylinders and also make large and small knuckle joint presses for the same purpose, to work by either hand or power. Full particulars will be given by addressing the firm as above.

THE PEERLESS Rubber Manufacturing Co., of New Durham, N. J., have recently put in a 3-roll calender made by W. E. Kelly, of New Brunswick, N. J. The rolls are 20 inches by 56 inches in dimensions, are bored, the top roll having two speeds for adjustment. The machine is also fitted with the spiral connecting gears which have proved so popular and valuable.

Economy and Comfort in Rubber Mills.

ALMOST any rubber mill is a great heat box. For the drying of the rubber, for the mixing, the calendering and the curing, heat is in constant use. It stands to reason, therefore, that a rubber mill is an uncomfortable place to work in, and may be an exceedingly unhealthy place. It is a fact, proved by statistics, that an unhealthy mill is an expensive mill, and that any contrivance that makes it easier for the help puts an added profit into the pockets of the employers. An exceedingly simple mechanism that is already in use in many rubber mills and that is being more generally adopted every day is an exhaust wheel for ventilation. Its use is not confined to any one particular part of the factory, as its application seems to be quite general. For example, put in the drying room it takes away the heavy moist air that surrounds the rubber, and by drawing in a fresh supply of dry air enables the rubber very much more quickly to season and become fit for the grinder. In the press-room, where during the summer, and even many times in the winter, is an oppressive heat that saps the energy of the workers, this noiselessly revolving wheel draws away the heated air and replaces it with a cool and fresh air that puts new life into the workers. It is used also for drying ground rubber and shoddy and for carrying off naphtha fumes. It has even been put in some of the grinding rooms, where it is found to be most efficacious in preventing the sweating and drying out of rubber while it is being worked. It is surprising how quickly this simple wheel will reduce the temperature from 25 to 40 degrees in almost any heated room. One who has spent some little time in figuring the amount of work that an able-bodied man can do, discovered that in heated rooms where the exhaust wheel was put, the amount of work turned off each day was increased from 20 to 30 per cent. From the foregoing it will be seen that this exhaust wheel, which, by the way, is known as the Akron Exhaust Wheel, is not only something in which the philanthropist can take delight, but it is a mechanism in which every keen and progressive manufacturer will take an interest, and we doubt if ten years hence there is a single rubber manufactory in the United States but what will be fitted with wheels of this kind. Manufactured by the Akron Heating & Ventilating Co., Akron, Ohio.

Brazilian Export Duties to Cease.

THE text of the new constitution for the United States of Brazil contains significant provisions relating to import and export duties. The National Government is given exclusive authority to decree taxes upon importations of foreign production, but has no power to levy export duties. Under Article VIII is reserved for the separate States of the federal union the privilege of determining taxation upon the exportation of merchandise not from other States, upon landed property, and upon the transfer of property. While exempting from duties exports in transit from other States the constitution nominally invests each State Government with exclusive power of taxing the foreign consumer of its own produce. For example, Pará can impose an export duty on its own rubber, or the coffee States a similar tax on their own products. This power of taxing exports would lead to inextricable confusion, and would bring foreign merchants into ruinous competition with native exporters to whom a drawback might be given, if the privilege accorded to the States were not limited in time. Section 2 under article VIII. declares: "From 1895 forward all duties on exportation will cease." If the constitution as finally adopted contains this important clause, the export duties on

coffee and other products will be abolished from that date. Any negotiations for commercial reciprocity conducted between the United States and Brazil will be subject to the reserved rights of the individual States to levy export taxes for a short term of years.

A Peculiarity of Celluloid.

INSURANCE men say that when they are called upon to adjust a loss caused by the burning of celluloid they are absolutely compelled to take the books of the owners unless they have evidence to show that the books have been made up fraudulently, says the *New York Times*. When a piece of celluloid burns up everything that is in it passes away into the air and disappears. The substance is made under patents owned by an American company, and it is composed principally of camphor.

A gentleman connected with the company, which manufactures all the celluloid articles sold in this market and furnishes the bulk of all that are sold the world over, says that the product of the company's factory last year was valued at \$1,500,000.

"Suppose now," said the person making this statement, "that our factory should burn, or that the store in which we keep much of our finished product should burn, there would not be in either case any means by which the insurance company could determine, independently of us, whether we had sustained a loss of a hundred dollars on celluloid or a hundred thousand dollars."

The Celluloid Patents.

JUDGE LACOMBE of the United States Circuit Court for the Southern district of New York, has lately rendered a decision adverse to the validity of the Hyatt patents, which cover the manufactures of celluloid. The substance known as celluloid consists usually of dissolved paper, although cotton or other vegetable fibres may be used. In the manufacture tissue paper is treated with nitric and sulphuric acids, the product is then washed and camphor added. The mass is then ground. Coloring matter is now added and the mass is made into a paste with alcohol, it is then pressed and broken between rolls. The finished mass is very plastic and may be moulded and pressed into any desired shapes, drawn into tubes, etc.

Rubber Culture in Mexico.

THE cultivation of coffee, sugar, rubber and tropical fruits in Mexico by American capitalists is becoming an important feature in this branch of business. Last year the imports of these commodities into this country were as follows: coffee, \$74,724,882; rubber, \$12,387,131; sugar, \$76,453,338; nuts and fruits, nearly \$15,000,000. The American Export and Trading Co. of this city have already organized ten different companies, with a capital of \$250,000 each, for the cultivation of these products in Mexico. Twelve more of these companies are under organization, and it is claimed Mexico can produce as fine qualities of coffee, sugar and rubber as any other part of the world, and at far less cost. The American Co. retains 20 per cent. in all their subsidiary companies, and becomes the fiscal agents for supplying all machinery and tools for the plantations in Mexico, and selling their products in the United States and in Europe.—*New York Press*.

Kohlbusch's Estimating Scales.

AN accompanying cut represents a rapid and accurate estimating scale for manufacturers, where the weight of a quantity is wanted from a furnished sample. At the same time it shows the weight of the sample itself. It is simple and very accurate. The present way of estimating is faulty, for unless a fine scale is used, any multiplication of the result of a sample weight, if it contains an error never so slight, will produce grievous miscalculations. The absolute weight of the quantity is shown at a glance without loss of time, or errors in figuring. To operate the Estimator place the article on the scale-pan, slide the poise until the scale balances, and the indicator on top of poise will point to the result in pounds, ounces and fractions of an ounce, how much material will be needed per thousand, hundred, gross and dozen, and on the beam upon which the poise slides, the weight of the article itself will be given.

Rubber manufacturers have taken kindly to these estimators, as they are always accurate and unapproachable as a time saver. There is nothing intricate about them. Among some of the firms using them are the Riverside Rubber Works; New Jersey Car Spring and Rubber Co.; Parker, Stearns & Sutton; Metropolitan Rubber Co.; Revere Rubber Co., of New York, Boston, Pittsburg and Chicago; The Gutta Percha and Rubber Co., of New York and Toronto; Home Rubber Co.; Boston Woven Hose Co.; Mercer Rubber Co., and the New York Belting and Packing Co. The scale is put up with or without a handsome slide front glass case, and is manufactured by Herman Kohlbusch, No. 59 Nassau Street, corner Maiden Lane, New York City.

Extent of the Rubber Interest.

CHARLES R. FLINT, of New York, says: "We consume in this country two-thirds of all the rubber produced in the world. That industry, to be carried on successfully, is dependent upon Brazilian rubber, not only on account of its superior quality, but from the fact that Brazil produces sixty per cent. of all the rubber produced in the world, and to show how nearly the consumption takes up what is produced, there is not to-day more than enough surplus rubber in the United States to supply the manufacturers of rubber goods for three weeks. This industry represents a product of \$50,000,000 per annum, employs more than 20,000 workmen and has doubled within the past fifteen years in this country."

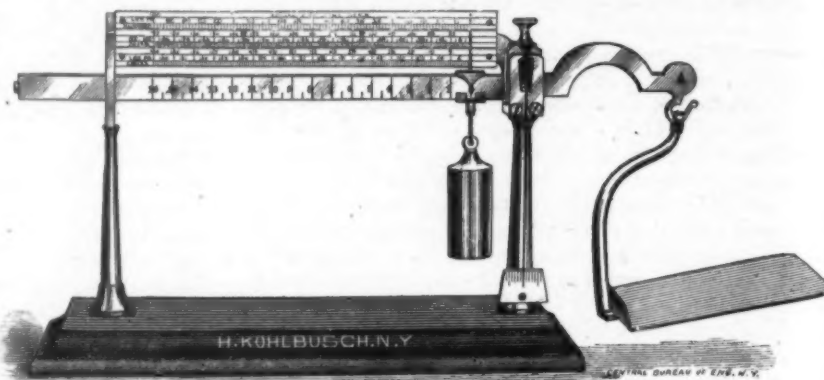
British Interests in Africa.

WALTER JAMES writes to the London *Financial Standard*: "An Advocate of British Interests" calls attention to the illimitable resources and possibilities of the interior of Western Africa. Does he know that already the unsatisfied eyes of South African explorers are turning greedily to the West Coast, athirst for concessions, while there is yet time for their acquisition on reasonable terms? Formerly the gin-spinners and rum-bustlers had it all their own way in the white man's grave. Now a change is coming o'er the spirit (Hamburg) of the dream. "Sleepy Hollow" will awake; unjust stewards will have to give account of their stewardship. Roads are being made; railways

will undoubtedly follow; monopolies will be broken up; trade will expand; gold mining will be pursued as an industry, and a paying industry, too. A better class of men will go out, and find the climate not so black as painted. The Gold Coast will emerge from "the smokes" which have so long overhung it, and a glittering and profitable future will cause India, Australia, and the Transvaal to turn a little pale. Western Africa is the home of India rubber. More than the wealth of the Indies lies beneath the soil to be gathered by those who have sufficient enterprise and energy to rub it out.

Rubber in an American Ship.

THE big cruiser *Maine*, now in process of construction at the Brooklyn Navy Yard, will be ready for launching in the autumn, probably toward the close of September. Many years



have passed since a ship was launched at the Brooklyn yard, and never has a war ship as large as the *Maine* been built or launched in any United States Government yard. The *Maine* is the first armored cruiser ever owned by this Government, and her launching will be a matter of no small interest.

An interesting feature of the *Maine's* machinery is the rubber valves that are to be used, capable of resisting heat of 320° intensity. No rubber valves of such strength have ever been made in America. Owing to the fact that the *Maine* is a "home-made" ship in all her parts, however, it became necessary for some factory in this country to make the material. After examining and consulting with a celebrated English firm the contract was taken by the Mercer Rubber Co. of Trenton, N. J., which made the *Baltimore's* valves, and which has successfully done the work required for the *Maine*.

THE *St. Louis Shoe and Leather Gazette* of June 26th has been reproduced by its publisher, John Mueller, on so greatly a reduced scale as to make it a typographical wonder. The *Gazette* is of about the regulation size for a foot-gear paper, and contains some 56 pages. By photographic reproduction and reduction, or words to that effect, the souvenir number is made to appear in dimensions of 3¾ by 4¼ inches linear measurement, so as to be easily accommodated in an ordinary-sized business envelope. And yet every letter in every article and advertisement in this little novelty is perfectly distinct, though minute in the extreme.

THE very last of the machinery of the defunct Norwich Rubber Co. was sold the other day, some of the churns bringing about a dollar a piece. It is said that a leather shoe factory is to be run in the building occupied by them.

(FAC-SIMILE OF THE ORIGINAL.)

AUGUST B. HOHMANN. HENRY W. MAURER.

STANDARD
THERMOMETERS,
HYDROMETERS,
PRESSURE
GAUGES.
CONTRACTORS FOR
EQUIPPING
RAILWAYS STEAMSHIPS
& MANUFACTORIES.
NEW YORK & CHICAGO.

Hohmann & Maurer.
MANUFACTURERS, DEALERS & EXPORTERS
**SPECIAL TEMPERATURE
AND
PRESSURE INDICATORS.**
90 FULTON ST.

EXPORT TRADE A-SPECIALTY
DICTATED LETTER

REMOVED TO
New York, U. S. A. 167 - 169 Plymouth St.
BROOKLYN. N. Y. July-31st-1890

India Rubber Publishing Co.,
New York City, N.Y.

Gentlemen:-

We feel that we owe you a statement, of the good derived from placing our advertisement in your paper. We did not quite believe your assurances of the benefits to be derived therefrom, but we thought we would try it and placed our Ad. in the January issue; it is therefore with great pleasure and satisfaction, that we now write you of the unexpected success we have met with, from the very start.

Through the Advertisement we have been able to reach many Manufacturers of Rubber Goods, Insulated Wire and kindred products, at home and abroad, hitherto unknown to us, and have received many inquiries and orders from the same, your paper being mentioned in each case.

As a direct result of this advertising, we are at the present time, equipping with our Special Temperature and Pressure Indicators, for Steam and Dry Heat Vulcanizing and Varnish making, no less than 15 mills, in the United States, Scotland, England, Germany, France and Italy and have received orders from Australia; we are firmly convinced of the importance and wide spread circulation of your paper and recommend it to the consideration of all interested: wishing you and your journal every success, we remain

Yours very truly,

Hohmann & Maurer

A Visit to the Macintosh Rubber Factory, in England, in 1850.

IN an exceedingly old-fashioned magazine, printed about forty years ago, we find a description of a visit to the factory of Charles Macintosh. It is perhaps the first detailed description of the manipulation of India rubber that was published. It is so well done, and some of the methods are so curious as compared with those existing to-day, that we reproduce the article complete, giving due credit to the English publication in which it was printed, *Sharpe's Magazine*.

To witness on the great scale the actual manipulation of the extraordinary substance, caoutchouc, and its manufacture into the various useful materials now so largely employed for various purposes, was one of our most long cherished wishes. Circumstances having at length occurred to accomplish the gratification of this desire, we are persuaded that an account of our visit to the immense works where these operations are conducted, will interest a very large proportion of our readers. This we shall immediately proceed to lay before them, premising a few general remarks upon caoutchouc itself, so as to render our article complete in the view it will present of the history and manufacture of this invaluable vegetable production.

Have any of our readers in their school-boy days plucked the milky stem of the spurge-wort, and rubbed certain inveterate warts with the oozing milk-white juice? In such a fluid caoutchouc exists, and in all milky juices of plants this singular substance may be detected in larger or smaller quantities. The composition of this milk varies as to its chemical constituents, but, physically, it is identical in most instances, and consists of a pellucid fluid, holding minute globules of caoutchouc in suspension. On exposure to air, these globules rise to the surface of the fluid, like the cream of animal milk, and these coalescing into one mass, they form that tenacious, elastic, insoluble material of which we are speaking; and by no process of science or art hitherto discovered can they be made to reassume their original condition. It is a remarkable fact that caoutchouc, in itself the most innocuous of all substances, should be principally yielded by a tribe of plants furnishing generally the most deadly products, and numbering in its terrible catalogue the frightful poisons of the Manchineel, Woorari, and Upas. The method by which it is obtained from the trees for the purposes of commerce has long been familiar—incisions being made deeply into the bark, the exuding fluid is collected and spread over moulds of clay to dry, the mould being usually of a pyriform or bottle shape. The tree from which it is obtained in greatest quantity is the *Siphonia elastica*, a large tree flourishing in great luxuriance in portions of South America. From the port of Para, in South America, from Guiana and the regions round about, the principal supply for the European markets, of which England is immeasurably the largest, is derived. Eastern India also sends large shipments for our use. Fifteen years ago the enormous quantity of about ninety tons of this vegetable extract was imported into England, and since this period the consumption has probably nearly doubled. Dr. Schleiden informs us that in one manufactory in Greenwich alone, eight hundred-weight are daily submitted to dry distillation in iron vessels. By this process a volatile oil is obtained, which possesses the valuable property of dissolving with great facility solid caoutchouc placed in it; the residue is a peculiar greasy substance, admirably adapted and largely employed for rendering cordage impervious to wet. This process is the subject of a patent.

Having passed the threshold, we may now without further delay describe in detail the particulars of our visit. The factory is situated in a densely-populated district of Manchester, its tall form rising in bold prominence from a crowd of human habitations, while the base is washed by the black and reeking waters of the Medlock. Streets of humming cotton factories form the only avenues to the building, and the muffled roar of toiling engines, driving hundreds of thousands of swift-revolving spindles and looms of ceaseless clack, gives a peculiar impression to the visitor's mind, and prepares him to expect something out of the common from the inspection of one of the great mechanical hives before him. Some difficulty exists in obtaining an entrance, but this being overruled by the introduction of a friend, we met with the utmost kindness and attention from the manager of the works, who was so polite as to accompany us, and enter into a lucid explanation of the various steps of the process from first to last. At the very gates of the factory, and even for some short distance from them, although the heavy air was loaded with odors of no very agreeable kind, that well-known and most peculiar naphthaline odor which every owner of a Macintosh abominates, was very distinctively perceptible, and on entering the premises it increased, until it became for a little while almost overpowering; the source of this smell we were hereafter to inspect.

The first room into which we were conducted is on the ground-floor of the building, and is the apartment in which the initiatory manufacturing processes are carried on. The casks in which the caoutchouc is imported are brought here and opened. Looking into one of them, we saw the "raw article" in the form of pear-shaped bottles, of no great pretensions as to elegance of shape, and varying much from one another in aspect, fineness of grain, and in color. The prevailing color of the outside was grey or black; on a section they were of a cream color, that is they retained their original color, for the blackness is due, as we believe, not alone to the smoke-drying of the bottles, but to the chemical influence of the atmosphere upon the caoutchouc. A similar darkening effect takes place in the case of *Gutta-percha*, the cognate of the article in question. It was curious to look at one of these bottles in section, for by a little close scrutiny it became easy to detect the number of times it was dipped in the liquid caoutchouc, by remarking the evident *layering* of the substance, somewhat resembling the annual ring-marks in the cross-cut stem of an exogenous tree. And it became easy to picture the busy scene of the native manufacture; here one makes the clay moulds and dries them in the sun, there are others hastening to and fro, dipping the moulds in the thick yellow cream which floats in that wooden trough, and then hanging them to the cords stretched between those majestic trees, until the sun has dried them sufficiently for a second or third dip, while, in every direction, behold the bleeding trunks of the noble *Siphonia*, streaming out into shells or earthen vessels the precious fluid destined to play so invaluable a part in the scheme of human economy. Manchester, however, is one of the most matter-of-fact places in the world, and our reverie was soon interrupted by a request to observe the manœuvres of several men who were busily engaged in this room. We must stay to state, however, that, contrary to a preconceived opinion, the number of layers in these bottles is far greater than would have been supposed; thus, there may be perhaps thirty or forty of them, or even more, to be counted in a section of one of these bottles; indicating, of course, that before completed, the patient native must have dipped it so many times into the fluid caoutchouc, and so many times hung it up in the burning sun. In addition to the bottle "rubber," to make use of a convenient technicality of

phrase, we were surprised to find it imported also in the form of solid square masses, or cakes; but the finest kind, so far as we were able to perceive and learn, comes over exclusively in the pyriform shape. The finest and purest specimens are all now sorted out, and kept distinct for the various purposes for which India-rubber in its original form is used generally.

Along one side of the room long troughs full of water are arranged, into which steam-pipes enter and keep the water at a pretty high temperature. Several men, seated on stools and armed with long knives, sit before these troughs with a cask of rubber at their sides. Taking up the bottles, or pieces, and placing them on a board before them, they slice them with a sawing motion in half, and throw the halves into the hot water. As we watched this simple process going rapidly forward, we too discovered the object of it, together with the disagreeable truth that the art of adulteration is, alas! not unknown in the dense and world-removed parts of Guiana. Small stones, lumps of clay, bits of wood artfully concealed in the smooth plump masses, fell from them under the operation of the knife; while in the middle of others was found a curious lump of bad caoutchouc, formed out of the scrapings of the sides of the troughs, and put in to increase the weight. These impurities necessarily become a serious annoyance to the manufacturer, and necessitate the adoption of several processes which common honesty on the part of the savage producer would altogether do away with. After soaking in the hot water for some time, the clay becomes softened and is washed away, and the other impurities are picked out. The pieces are then collected out of the troughs and conveyed in baskets to another portion of the building.

That it might be truly said we had seen the substance in all of its stages, we took a piece from the trough, and were conducted by our clear headed companion to a lower room. Passing by piles, or stacks of what appeared to be strips of very coarse, thick sackcloth, we were brought to the end of the room where the purifying machinery was fixed. The construction of this very powerful and efficient engine will be very readily understood. At a convenient height from the ground were placed two cast-iron rollers, the faces of which were cut in a very peculiar manner; these revolved upon strong shafts, upheld by a cast-iron frame, and capable of being put in or out of gear with the driving machinery at pleasure. Immediately above them a jet of water was made to fall so as to wash with some force the revolving surfaces. Below was a complete system of drainage, by which the soiled water escaped. Our piece of rubber was now taken, and the machine being set in motion and presented to the revolving rollers, as with a giant's grasp they seized the substance and *crunched* it between their iron teeth, in a manner so energetic as to make one almost shudder, while the water washed over the substance and swept away every particle of foreign matter. This process was repeated several times, and each time the water brought away less and less impurity, until at length it washed through quite clean. The effect of this mangling operation in the rubber was very singular. Instead of tearing into shreds of great minuteness, it actually flattened it out into a firmly coherent mass, deeply indented, it is true, with the tooth-marks of the strong engine, so deeply indeed, as to wear the appearance of coarse network; yet still forming a tenacious and resisting band of caoutchouc. The aspect of the substance has also undergone a remarkable alteration; it is no longer black externally, and cream-colored within, but is now uniformly of a greyish tone of color. Neither any longer can the gritty sensation consequent upon its impure condition be detected in it; in short, instead of being a heterogeneous mass, both as to texture and external character, it

is now a soft, smooth-feeling homogenous substance. The vast amount of impurity got rid of in this simple manner would scarcely be believed; there fell out of a tolerably pure piece of rubber a little handful of fine gravel, not to take into consideration the large amount of clay washed away as mud during the process. We thus discovered that, what on our entrance we had mistaken for heaps of coarse sackcloth, were actually heaps of rubber in its now greatly altered and purified form.

From the nature of this process it will be evident that when the rubber leaves the purifying engine a large quantity of water must necessarily be included in the masses, locked up, possibly, in little bladders of the substance. This must be perfectly removed, or its presence would interfere to a most serious extent with the success of future processes. The thick bands of rubber are, therefore, conveyed to a stove-room heated by steam-pipes. They are here disposed so as to give the greatest facilities for evaporation, and after remaining a certain time they are removed, when it is found that every particle of moisture has been driven away.

Following a truck laden with the dried substance, we entered another room, in the centre of which was a massive piece of machinery, the kneading engine. Although not heated artificially the temperature of this room was very considerable, and the cast-iron frame of the engine was in places so hot as not to be touched by the hand with comfort. The source of this heat is very interesting; it arises *exclusively* from the compression of the rubber by the powerful mechanism into which it is placed. To the reader inconvertant with the laws of caloric this may appear rather inexplicable, but the difficulty is easily removed. It appears that every substance has within it an amount of caloric which, not being sensible to the touch or thermometer, is called *latent*. If the body, no matter what it is, undergoes a violent compression this latent heat is (to use homely language) *squeezed out*, and then it becomes sensible to the touch and thermometer, and may even arise to a considerable degree of temperature. Thus there is a philosophic toy consisting of a piston working in an air-tight cylinder; at the bottom of the piston is a small piece of German tinder. Now, by violent forcing down, with a sharp, sudden motion, this piston, so much heat is extracted from the compressed air, and the tinder actually takes light!

The principle in the case in question is precisely similar; the rubber undergoes a degree of compression which would crush the human body into a shapeless jelly; and the result is a very convenient one; for it extricates exactly enough heat to keep the caoutchouc, which, as is well known, is softened by heat, at a proper temperature for working, without the necessity of applying heat by artificial means.

The kneading-engine is, probably, five or six feet high, by eight or ten in length. It consists of a sort of powerful cast-iron box, with four heavy iron lids, counterbalanced by a falling weight. Along the horizontal axis of the box, or chest, is placed a massive roller of cast-iron, with fluted edges, which is in connection with a system of strong cogs and moving-gear attached to the engine-shaft. It is thus made to revolve slowly, but with invincible force inside the box, and would, of course, if there were any substance placed between it and the sides of the chest, crush or compass it with great power. In order to watch in succession the whole of the stages of the kneading operation, let us suppose the box empty. The four heavy lids are lifted up, an armful or two of the bands of rubber are crammed in, until the customary quantity is stowed away. The lids are then lowered down, and fastened over the contents of the chest by powerful bolts, which prevent their being lifted up by the action of the machinery, and a handle

sets the whole ponderous wheel-work and roller in steady motion. A low, muffled, crushing sound escapes from the machine, indicative of the fearful mangling which it is inflicting upon the captive rubber. At the same time, the temperature of the chest rises rapidly, and before long becomes very high indeed. When this has gone on for an hour or so, one or two of the lids are unloosed and partly raised, and now an opportunity is afforded us of inspecting the kneading of the substance. The mass has undergone a striking alteration; it is no longer a hard resisting substance, but is soft and plastic as dough. Its color is also changed from a greyish cast to a yellowish brown; and its texture is smooth and uniform. Could we compare it to anything, it resembles just now an oblong flattened mass of brown dough, only that it emits the peculiar caoutchoucine odor to a rather disagreeable extent. Its motion inside the chest is just that of a planetary body; it traverses an orbit bounded by the sides of the box, and it has also a motion of rotation upon its own axis in so doing. This, in fact, as a little reflection will show, is just the combination of movements we should expect from a body placed in such a position and under such circumstances as that in question. In consequence of this peculiar revolution the mass is presented at regular intervals to all parts of the sides of the chest, and is not, as might perhaps have been supposed, spread over all parts of it at once. Thus, at stated times, it presents itself in a body to that part of the chest where the lids are situated, and if the lids were not partly closed it would turn itself completely out of the chest. This fact is taken advantage of when the kneading has gone on for a sufficient length of time; the four lids are then lifted quite up, and the great, soft, hot mass is majestically discharged out of the machine into the arms of a couple of men. When one quantity is removed its place is taken by another, and the process begins, goes on, and concludes as before.

In order to form it into a convenient shape the mass is then taken into another room. Here we saw several presses, of various forms, intended to effect this object. The most common mould into which it is placed is one of cast-iron, six feet in length, one in breadth, and one in depth. Another form was that of a solid drum. On the soft mass of rubber being placed in these and covered in, it was placed under an hydraulic press, and by this means was made to take the form of the mould. After remaining under pressure until it was cold, it was then removed and carried up stairs to the cutting department, whither we would beg the reader to follow us.

[To be continued.]

Infusorial Flour.

FROM the celebrated English house of Charles Macintosh & Co., Limited, comes the following inquiry:

EDITOR INDIA RUBBER WORLD: In your June number, page 195, we notice you speak of "infusorial flour." Can you kindly inform us what this is and tell us where to procure a sample? Thanking you in anticipation, yours faithfully,

CHAS. MACINTOSH & CO., LTD.

Infusorial Flour comes from a large deposit in the State of Maine, which is said to contain the best and purest in the world. It is a pure white earth made up of shells so small that a very powerful microscope is needed to discern their shape. It is an excellent non-conductor of heat, is perfectly neutral, and is even more indestructible than asbestos. An ordinary flour barrel of it weighs about sixty

pounds. Messrs. Henry W. Peabody & Co., of Boston, New York and London, are selling agents for the products of this deposit.

Rubber Interests of West Africa.

WHILE the subject of African rubber remains one of general interest, our readers doubtless will be interested in the appended article from the *Mexican Financier* of July 26th, although the enterprise has been mentioned already in the INDIA RUBBER WORLD:

"Our native growers of India rubber may congratulate themselves on excellent prospect for this new national industry. The stock of rubber in the great markets of the world is light, and the supply of Pará rubber (Brazilian) is entirely inadequate to the needs of the manufacturers. The annual collection of Pará rubber is about 16,000 tons and this amount might well be doubled, for manufacturers are employing adulterations, substitutes and all sorts of devices to eke out the scanty supply of the genuine article. A company specially formed to exploit the rubber forests of the African Republic of Liberia has been formed in London. The capital of the new company is £225,000. The company according to the prospectus which we have received, is formed with the immediate purpose of acquiring and working a concession from the Government of the Republic of Liberia, for the sole right of collecting and exporting India rubber and gutta percha from the Republic for the European and American markets, and with the intention of acquiring and working other valuable concessions relating to India rubber and gutta percha from governments in Africa, America, Madagascar, and other parts of the world.

"With this view an agreement has been already entered into for the acquisition of the sole right to collect and export caoutchouc-rubber or gum-elastic, and gutta percha from all public lands belonging to the Liberian Government, except from such lands as may from time to time be required for the purposes of Government. This right is estimated to extend over an immense area of about twenty-five million acres. The field for operations lies between the British Settlements on the West Coast of Africa, being bounded on the north by Sierra Leone, on the south by Cape Coast Castle, the coast line of the country referred to being about 400 miles. Specimens of rubber from Liberia have been submitted to the examination of experts, and it is pronounced by Mr. Meiter to be worth even in a crude state as much as 1s. 10d. to 2s. per lb., and will, when treated under a process which this company will have the right to use, and by which it is estimated that its value will be increased 25 per cent., compare favorably with the best-known qualities in the world, and it is stated that the best crude quality was sold at the public sale, May 19, 1890, at 2s. 0½d. per lb.

"In order to give intending shareholders an idea of their investment, it has been calculated that two thousand tons can be collected annually, which delivered in London or Liverpool, if only at sixpence per lb. profit—a very low estimate—would produce £112,000 per annum. But assuming that only 1000 tons can be so annually collected, it will show the following results: Profit on 1000 tons at 6d. per lb. net, £56,000; dividend 20 per cent. on £225,000, £45,000; leaving a balance of £11,000; which is a sum more than ample to cover all home working expenses. It is intended to commence operations forthwith."

DON'T expect an advertisement to bear fruit in one night. You can't eat enough in a week to last you a year, and you can't advertise on that plan either.

Suggestions for Raising Rubber in the United States.

(Written for the INDIA RUBBER WORLD.)

BY COURTENAY DE KALB.

INDIA RUBBER, instead of being confined to a few plants in the tropical zone, occurs in an extremely large number of widely different forms of vegetable life, ranging, in their distribution, far into northern latitudes. The world has not forgotten the recent abortive effort to utilize the caoutchouc in the milk of the common asclepias, or silk weed, whose habitat is almost phenomenal for its wide extent, and whose abundance is a cause of sorrow to farmers. The milk of the asclepias, however, was not sufficiently rich in gum to prove remunerative, no matter upon how large a scale the enterprise might have been conducted. The world thus has been made aware that India rubber may be obtained from a northern plant, but it probably is not generally known that there are at least twenty-four distinct species of the asclepias native to the United States; that they all secrete a milk which contains varying amounts of caoutchouc; and that several of them, the *Excacaria lucida* (Swartz), of Florida, for example, develop into true branching trees, and attain a height of forty feet! In this is found a northern analogue to the tree-like development of the same usually shrubby family (*Euphorbiaceae*) in the tropics, which is seen in the two best known rubber trees of Brazil. Another euphorbiaceous tree (*Stillingia sebifera*, Michaux), closely allied to the asclepias, and like it containing small quantities of rubber in its milky sap, was many years ago introduced from the semi-tropical climate of China into the Southern States, and it is now growing wild in the woodlands of South Carolina and south-eastern Georgia, having escaped from cultivation, and it there develops to its usual height of forty feet. Another euphorbiaceous plant, the common castor oil bean (*Ricinus communis*), whose luxuriant palmate leaves are so conspicuous in northern gardens, is strictly tropical, and is further suggestive of the easy adaptability of this interesting family to various climates.

There are, moreover, other families which yield rubber, among which are notably the *Artocarpaceae*, or bread fruit trees, and the *Moraceae*, or figs. It has not been many years since one of the latter, the *Ficus elastica* of India, furnished a considerable amount of rubber to commerce, but its inferiority drove it from the market as the Amazonian resources became more extensively developed. It is not a little remarkable that we should have growing abundantly in nearly all parts of our own country a representative of this family, the common mulberry (*Morus rubra*), which is distinguished among vegetable physiologists for possessing lactiferous glands in a state of development as perfect as exists in the *Hevea Brasiliensis*, the great producer of "Pará rubber." The milk of the mulberry, unfortunately, is not rich in rubber, but the existence of such a tree among us, possessing so marked a structural similarity to its famous tropical cousin, may be indicative of certain hitherto unthought-of possibilities. Might not a hybrid be

formed between one of the great rubber-producing trees of Brazil and the northern mulberry, or if that should prove impracticable might not such a result be obtained with one of our southern asclepiaceous trees? Although hybridization is more easily accomplished between members of the same genus, while a cross between species of different genera is comparatively rare, yet it has been effected in a number of instances, and between such hardy shrubs as the rhododendron and the azalea, which are quite as distantly related as the *Hevea* and the *Morus*, or the *Hevea* and the *Stillingia* or *Excacaria*. Cross fertilization is favored by a division of the sexes in the flowers of the plants between which the attempt is to be made, and this is the condition of florescence in both the *Hevea* and in the *Morus*. It is well known that hybrids are very likely to present a largely increased constitutional vigor over that of the parents. This result may even be obtained by so simple an expedient as cross fertilization between individuals of the same species. Darwin remarks that in his experiments cross-fertilized plants as a rule withstand the effects of removal from the hot-house to the air better than self-fertilized plants; that they will survive very cold weather; and can even be made to resist frost, when individuals not so treated would be killed. He says: "Even the tips of the shoots of the crossed plants of *Sarothamnus scoparius** were not touched by a very severe winter, whereas all the self-fertilized plants were killed half way down to the ground, so that they were not able to flower during the next summer." It might prove to be possible by such cross fertilization to evolve a rubber tree from the *Hevea Brasiliensis* which would yield as good a gum as at present, and yet admit of being cultivated in the vast expanses of waste land in Florida, Louisiana, and at other places around the Gulf of Mexico and the Carolina sounds. If, however, a hybrid with one of the more northern allied trees could be formed, although the new plant might not yield so abundantly, it could probably be cultivated over a very wide area, and render otherwise useless land productive.

In case neither hybridization nor cross fertilization should effect the desired result, there remains yet a third means by which a profitable northern rubber plant might be obtained. This is by grafting, or by the closely allied system of budding. Among other objects of grafting is that of rendering a tender plant more hardy. All are familiar with the case of the peach. Whether it is indigenous to China, or to the valleys of Afghanistan, is of little moment; the conditions of temperature of both countries are such as to give occasion for surprise that a tree native to either of them should now endure the severity of northern winters, and should attain its highest development of fructification in this rigorous clime. More recently the remarkable effect often obtainable by such horticultural manipulation was shown in the grafting of the delicate Mexican oak upon the northern oak, which produced a perfectly hardy tree. Likewise semi-tropical roses have many times been grafted upon the common dog rose, with similar results.

* The so-called "Broom" of the British Isles, of the order *Papilionaceae*.

It is worthy of remark that grafting would seem to be particularly adapted to such plants as grow from cuttings, and the rubber tree, when cultivated, is always propagated in this manner.

The *Hevea Brasiliensis*, as is well known, flourishes in a region whose warm atmosphere is so highly charged with vapor that it has frequently been described as "steamy." This would naturally cause some doubt as to the possibility of acclimatizing the rubber tree in northern latitudes, but there is no knowing, until such a trial should be made, how thoroughly the outcome might disappoint the sceptic. It happens, indeed, that there exists in Brazil another rubber yielding tree, the *Manihot Glaziovii*, also belonging to the *Euphorbiaceae*, which chooses for its habitat a dryer climate, and a rocky, arid soil. It is also of extremely rapid growth, attaining within two years a diameter of from four to five inches, at which stage of growth it would not be unsafe to tap it. This tree is abundant along the seaboard provinces of Ceará, Espírito do Santo, and Rio de Janeiro, and its product is known in commerce as "Ceará rubber." The *Manihot* also grows readily from cuttings, and success might be obtained with it, should the *Hevea* obstinately refuse to yield to the art of the horticulturist. The gum derived from it is not, of course, equal to the "Para" grade, although it possesses an advantage in its exceedingly low percentage of water, but it is nevertheless sufficiently good to become an article of no small consideration to farmers, could it be grown in now unproductive lands in the United States. The foregoing suggestions, although extremely crude, may serve to indicate a new and valuable field of research, and experiments to determine the feasibility of producing a profitable northern rubber plant by hybridization, by cross fertilization, or by grafting, might very creditably engage the attention of the Agricultural Department at Washington, and of the State Agricultural Experiment Stations throughout the country, from which important results might follow.

It should be remembered that cheap labor is not an essential to success in rubber planting, and this obstacle, which has negated our climatic advantages in the culture of tea, will not operate adversely to the establishment of such an industry as this. The amount of gum which can be drawn from a single tree is so considerable that the concentration of a large number in a small area, as would be the case in an orchard, would so facilitate the gathering as to offset in part the disadvantage of more expensive labor, and it should also be taken into account that the so-called "expensive" American labor has been repeatedly demonstrated to be cheaper than that of other countries, by reason of its greater efficiency, and there is no part of the globe to which this comparison can be applied with greater force than to South America. The northern grower would also possess a further hold upon the market by immunity from the heavy export duties which are now levied upon rubber coming from Spanish-American ports.

THE new and popular Rainbow Packing of the Peerless Rubber Mfg. Co., of New York, has the word "Rainbow" in a diamond in black stamped on all packages.

Cements of Rubber and Gutta Percha.

THE number of rubber cements in use all over the world is something remarkable. Almost all of them have as the base either gutta percha or India rubber, and some cheap solvent. Gutta percha tissue, to be sure, is used as a cement without the addition of any solvent, its sticking properties being brought out by the application of heat. This may be noticed in the application of the bindings that go around the bottoms of trousers and the stamp marks in hats, and other work of a similar nature. In making a cement, one should know pretty thoroughly what is to be expected of it before they could advise upon it. For instance, an ordinary rubber cement will hold on a host of different surfaces and with the best of success, except where there is continued dampness. For holding to damp walls, or surfaces where there is a constant presence of moisture, there is nothing equal to Jeffry's Marine Glue, the formula for which has been published and republished all over the world. It consists of:

1 part India rubber,
12 parts coal tar,
2 parts asphaltum.

The rubber, after having been massed, is dissolved in the undistilled coal tar, and the asphaltum is then added. This glue, as its name indicates, is oftentimes used for mending articles at sea, or patches, for instance, that are to be laid on surfaces that are to be under water, and it has been found to be a most excellent thing. Of glass cements there are a great many, the rubber as a rule being dissolved in some very volatile solvent and some hard drying gum is added.

An article now going the rounds of many of the technical papers is one on cements by James Manchester, originally published in the *Boot and Shoe Trade Journal*. He shows there some formulae that are new to us and we are not exactly sure how they may work. Some others that he mentions are such as have been known for a good many years and have been tried and proved to be very efficacious.

"A gutta percha cement for leather is obtained by mixing the following. It is used hot: gutta percha, 100 parts; black pitch or asphaltum, 100 parts; oil of turpentine, 15 parts. An elastic gutta percha cement especially useful for attaching the soles of boots and shoes, as on account of its great elasticity it is not liable to break or crack when bent. To make it adhere tightly the surface of the leather is slightly roughened. It is prepared as follows: by dissolving 10 parts of gutta percha in 100 parts of benzine. The clear solution from this is then poured into another bottle containing 100 parts of linseed oil varnish, and well shaken together.

"Good rubber cement for sheet rubber, or for attaching rubber material of any description or shape to metal, may be made by softening and dissolving shellac in ten times its weight of water of ammonia. A transparent mass is thus obtained, which, after keeping three or four weeks, becomes liquid, and may be used without requiring heat. When applied it will be found to soften the rubber, but when the ammonia is evaporated it forms a kind of hard coat, and causes it to become both impervious to gases as well as liquids.

"Davy's Universal Cement is made by melting 4 parts of common pitch with 4 parts of gutta percha in an iron vessel, and mixing well. It must be kept fluid, under water, or in a dry hard state,

"A very adhesive cement, especially adapted for leather driving belts, is made by taking bisulphide of carbon 10 parts, oil of turpentine, 1 part, and dissolving in this sufficient gutta percha

to form a paste. The manner of using this cement is to remove any grease that may be present in the leather by placing on the leather a piece of rag and then rubbing it over with a hot iron. The rag thus absorbs the grease, and the two pieces are then roughened and the cement lightly spread on. The two pieces are then joined, and subjected till dry to a slight pressure.

"A solution of gutta percha for shoemakers is made by taking pieces of waste gutta percha, first prepared by soaking in boiling water till soft. It is then cut into small pieces and placed in a vessel and covered with coal tar oil. It is then tightly corked to prevent evaporation, and allowed to stand for twenty-four hours. It is then melted by standing in hot water till perfectly fluid, and well stirred. Before using it must be warmed as before by standing in hot water.

"A cement for uniting India rubber is composed as follows: 100 parts of finely chopped rubber, 15 parts of resin, 10 parts of shellac; these are dissolved in bisulphate of carbon.

"Another India rubber cement is made of: 15 grains of India rubber, 2 ounces of chloroform, 4 drachms of mastic; first mix the India rubber and chloroform together, and when dissolved the mastic is added in powder; it is then allowed to stand by for a week or two before using.

"Cement for sticking on leather patches and for attaching rubber soles to boots and shoes, is prepared from virgin or native India rubber, by cutting it into small pieces or else shredding it up; a bottle is filled with this to about one-tenth of its capacity, benzine is then poured on till about three parts full, but be certain that the benzine is free from oil; it is then kept till thoroughly dissolved and of a thick consistency; if it turns out too thick or thin, suitable quantities must be added of either material to make as required.

"An elastic cement is made by mixing together and allowing to dissolve, the following: 4 ounces of bisulphide of carbon, 1 ounce of fine India rubber, 2 drachms of isinglass, $\frac{1}{2}$ ounce of gutta percha; this cement is used for cementing leather and rubber, and when to be used the leather is roughened and a thin coat of the cement is applied. It is allowed to completely dry, then the two surfaces to be joined are warmed and then placed together are allowed to dry.

"Cement used for repairing holes in rubber boots and shoes is made of the following solution: 1st. Caoutchouc 10 parts, chloroform 280 parts; this is simply prepared by allowing the caoutchouc to dissolve in the chloroform. 2d. Caoutchouc 10 parts, resin 4 parts, gum turpentine 40 parts; for this solution the caoutchouc is shaved into small pieces and melted up with the resin, the turpentine is then added and all is then dissolved in the oil of turpentine, the two solutions are then mixed together to repair the shoe with this cement. First wash the hole over with it; then a piece of linen dipped in it is placed over it; as soon as the linen adheres to the sole the cement is then applied as thickly as required."

Rubber Planting With Jute.

NEW YORK, July 7, 1890.

EDITOR INDIA RUBBER WORLD:—A telegram from Mexico, June 29, to the *Herald*, states that the experimental rubber planting in Chiapas is giving fine results. With this brief notice came the more important statement that an English company is buying land there for raising jute. I wonder if it is their intention to plant rubber through the jute fields, so as to reap a profit while the rubber is maturing? This might be a good plan, and I think it would work in Peru, also.

D. E. L.

A Model Rubber Store.

ONE of the finest rubber stores in the United States, is situated at Nos. 52-54 Summer Street, Boston, and is the property of the Stoughton Rubber Company. This store is as large as ten ordinary rubber stores, and has an assortment of rubber goods of all kinds that is positively amazing. For instance, in the clothing department, there are on hangers between 1000 and 1500 ladies' garments, ranging all the way from the most expensive silks and silk-wools down to the cheaper grades, in all of which the rubber is most carefully vulcanized, while a guaranty of excellence covers everything made by this company.

As one enters the store, at the right, in front is the druggists' sundry department, consisting of handsome counters and tier above tier of cases, in which are contained everything in the way of rubber goods in the druggist sundry line that one could imagine. To the left, is the order department, fitted with a magnificent mirror, where dimensions are taken for Mackintoshes or rubber garments made to order, in which not only the quality of the goods are guaranteed, but a fit is assured. Toward the centre of the store are the broad counters where ready made Mackintosh garments are displayed. These are laid across the counters without folding, and embrace one of the largest stocks that there is in the United States. Close to this is the carriage cloth department, which is a specialty of this company. In the rubber boot and shoe department are elegant plush sofas for trying on the boots, while the stock is kept in handsome cabinets that run from the floor to the ceiling. In the rear of the store are the offices of Mr. Randolph, the manager, and the various clerks, beside which there is a private office for specially confidential chats, and quite a large office that is to be utilized for an entirely new idea. This is nothing more nor less than a wholesale sample room, elegantly fitted in ash, away from the rest of the store, wherein samples of all goods that are made are displayed upon hangers, together with books of the hundreds of styles of cloth, double and single texture, which the Stoughton Rubber Co. make.

In addition there are five desks, each with plenty of stationery, stamps, and everything for the convenience of the customer, including in each desk a box of fine Havana cigars. The whole place is lighted by electric lights and fitted with the Lamson Carrier system, nor is there anything about it that is not of the latest and most elegant finish and arranged with an eye not only to convenience, but to accommodate the ever increasing trade, both wholesale and retail, that this pushing concern are daily supplying. Broad stairways lead to the floor below, where are kept the heavier goods. Here are hangers for ice aprons, bins for oil clothing and heavy clothing, and long lines of belting, packing and hose of the New York Belting & Packing Co.'s make. A curious department in this lower story is the repairing of all sorts of rubber goods. An expert is kept there who not only soles tennis shoes and repairs rubber boots, but he is very skillful in mending waterproof cloaks, aprons, and in fact almost any rubber goods, and so popular is this department that he is kept on the jump from morning to night.

The goods purchased at this store are almost all shipped from the factory, and in spite of the immense amount of business that is done there, and the throng of customers, everything moves like clock-work. Every clerk knows his department, and it is without doubt one of the best arranged stores to-day in existence.

SOMETHING that many people will preserve is the Universal Game Counter sent out by The Chieftain Co., of Canton, Ohio. For counting games and points it is just exactly what one wants.

Current Gleanings.

BY LIGHTNING ARRESTER.

THE recent disastrous fire at the Western Union Building was of course laid to the credit, or rather the discredit, of the deadly destructive electric wire. Nobody really knows what started the fire, but the usual carelessly thrown down match or cigarette-end might be cited as the cause with better chance of coming near to the truth, than the fire-scapegoat of the day—the electric wire. Mr. Gould preferred to stick to the wire theory and thought that several wires got crossed and the combined currents (!) set fire to the insulation. If such an explanation were possible (which it is not), a fire in the Western Union Building ought to have been a daily occurrence for years past, judging from the inextricable confusion in which the wires were massed together at the switchboard there. This wretched piece of work was apparently looked upon with pride by the Western Union officials, judging from the full page illustration of it which appeared in *Scribner's Magazine* last year.

Mr. Gould also said that if the fire had been discovered at a later hour in the day there would have been no loss of life, as was suggested in the daily papers, but that the fire would have been put out immediately. Mr. Gould to the contrary, it was a very lucky thing that the fire broke out when it did, as it takes a very small fire to start a panic among several hundred men and women, and a panic in the old Western Union operating room would have resulted in disastrous consequences. Even on ordinary occasions it was almost as difficult to get in and out of the room as it is to cross Broadway at Fulton or Cortlandt Street, and if there had been a rush for the narrow doorway and winding staircase the operators would have stood a poor chance for the safety of their limbs and lives.

The work of reconstructing the upper part of the building is now being actively pushed, and it is to be hoped that the company will carry out the equipment of the operating and battery room, and the wiring and connections on scientific principles. Now that the former very unsatisfactory arrangements have been wiped out so effectively, a capital opportunity is offered for starting out on new and improved lines. But the policy of the company does not favor good engineering and technical organization and it is doubtful whether there will be much improvement. The Western Union is the most conservative, not to say fossilized, electrical company in the country. Its methods of working are decades behind the times, and new inventions in telegraphy are steadfastly discountenanced; its lines are as badly built as overhead lines can possibly be and remain standing, and its offices are poorly equipped and maintained. Some day a sweeping change will be made in all this, but it is doubtful whether it will take place under the *régime* of the present management.

The American Electrical Works at Providence, R. I., are doing such a large business in insulated wires and cables, that an addition is to be made to the factory in the shape of a wing 125 feet by 40, and five stories high. The new building will accommodate about 300 employes, nearly doubling the working staff of the factory. The American Electrical Works draw all their own wire for sizes below No. 18, and now also make their own dies, which, until recently they were obliged to import from abroad.

A good instance of the quick work that can be done in fixing up an electric light installation to meet sudden and pressing

requirements was afforded last month at Leeds, England. A strike had taken place at the gas-works and the town was in darkness. Naturally the chief sufferers were those whose business had to be carried on through the night, and of these the most seriously affected were, of course, the newspapers. An electric lighting firm came to the assistance of the *Yorkshire Post*, and at 1 P. M., work was begun on the installation. Excavations had to be made in the basement to make room for driving pulleys and foundations for the dynamo, and the countershafting and pulleys had to be turned and bored, but at 10.50 P. M. the dynamo was running and furnishing current for six 100 c. p. lamps in the machine room and 40 lamps of 50 c. p. and 20 of 16 c. p. in the composing room. The wiring was all completed and the lamps provided with shades in 5½ hours, and the installation was running in less than ten hours after work was begun.

The experiment was recently tried of sending an alternating current of 1000 volts pressure through the submarine cable which connects the electrically lighted buoy off Robbin's Reef, New York harbor. The experiment was made to see if the cable would stand the stress without breaking down or developing a fault, and the result was entirely successful as far as the cable was concerned. There was no leakage and no injury to the cable. This cable is insulated with gutta percha and was made by the Bishop Gutta Percha Company, the same company also manufactured the cables which carry current for lighting the six buoys in Gedney's Channel.

The mains laid by the Callender Company, of England, for underground electric light distribution are of somewhat curious construction. They are laid in iron troughs or cases, the mains resting on bridges which keep them from contact with each other or with the iron trough, and the whole space is run in solid with bitumen. For a central station system recently put in at Bath, 40 miles of these mains were laid, the amount of bitumen used being about 130 tons. Some of the circuits over four miles long have an insulation resistance of over 30 megohms, or more than 120 megohms per mile.

Most of the telegraph lines in Germany are underground and the firm of Felten & Guillaume has grown rich on the business of supplying the German government with underground cables. The same firm is now manufacturing 90 miles of 28 conductor telephone cable for the telephone system of Berlin, which is to be placed on a basis of underground distribution. The work is estimated to cost about \$500,000.

New insulating materials continue to make their appearance. The latest rejoices in the poetical name of "isolatine," which sounds more suitable for christening the fair heroine of a high-flown novel, than for association with the idea of a "bituminous, viscous, liquid mass, suitable for all purposes of insulating protection to electrical conductors." Isolatine is said to withstand "all aerial and subterranean influences," which means that it is not injuriously affected by moisture, changes of temperature, sewer and coal gases and acids, and the useful quality of "unchangeable toughness" is claimed for it, added to which, or rather following from it, if unchangeable toughness means anything, the new compound becomes neither brittle nor porous, but retains its elastic, gum-like consistency under all conditions. With such a range of good qualities, rendering it impregnable at all points, so to speak, "isolatine" ought to have a future before it.

"Sealine" has nothing to do with the Behring Sea dispute, but is the name of a liquid insulating paint, for which (both name and compound) Mr. J. A. Seely, of the Seely & Taylor Manufacturing Company is responsible. "Sealine" has no unpleasant odor and is fire-proof as well as oil-proof. It has been used for coating transformer cases, lamp-hoods, mouldings, etc., and does not easily crack or wear off.

The Americal Circular Loom Company, of Boston, has brought out a new style of line wire, the covering of which is woven on instead of being laid on or braided in the usual manner. This is effected by means of circular looms of an improved type, the invention of Mr. Chas. T. Stetson. The woven covering is very hard and firm, the wire having the appearance of being encased in a canvas jacket. After being covered in this manner the wire is treated with insulating compound, which is forced in so as to thoroughly impregnate the cotton covering, it is then polished and finished. The completed wire has a very hard, tough finish, is as water-proof as the best of cotton-covered line wires, and the insulation will stand a great deal of abrasion without being worn through.

Mr. Charles Cuttriss, the electrician of the Commercial Cable Co., finds that the working of the electric railroad on the Coney Island road affects the signals on the Commercial Company's cable, which terminates at Coney Island and is connected with the Company's office at Broad Street by an underground cable running through Ocean Avenue and Brooklyn. In an interesting article in a recent issue of the *Electrical Engineer* Mr. Cuttriss describes the disturbances observed on the cable, which have sometimes been so serious as to completely obliterate the signals on the delicate syphon recorder. The testing instruments were also affected, and at first it was believed that the trouble must originate from a fault in the cable, but the joint at Coney Island was cut and both sea cable and underground were tested and found to be perfect. Mr. Cuttriss traced the disturbing influence to the electric railroad by listening on the cable with a telephone when he could distinctly hear the stopping and starting of the cars. The most curious part is that the electric railroad is at no part of its route nearer to the underground cables than *half a mile*. From this it would seem that if the cars were to run directly above the cable at any point the receiving instrument at New York would probably be rendered absolutely useless.

The Latest Catalogues.

RUBBER men are beginning to display artistic taste in catalogues and price lists. That of the Woonsocket Rubber Co., is as good as yet has been seen. The title page is a study in its rubber heel and its block outlines, as are the solid script letters on the succeeding pages which describe the goods, the clean cut pictures of the mills, and finally the plates describing the outlines and shapes of the different styles. The latter announces a new departure in descriptive illustration. The body of the goods described, is simply the color of the page. The seams are dotted, and any special work is noted in a striking manner. The form of the boot, or shoe, is by a heavy line. Cloth and other attachments are represented by dark shadings. A complete price list is found at the end of the catalogue, which consists of 50 pages. The whole get up of the work will occupy the attention of imitators for some time to come.

The Hodgman Rubber Co. have also issued a nicely colored folder to the trade, which describes their mackintoshes. In

picturing the uses of the mackintosh it is attractive in its conceptions of social life, and well calculated to interest the reader in the comforts of a tasty, substantial waterproof garment.

Recent Rubber Patents.

- No. 432,415.—Bubble pipe. Alonzo Lewis, Baltimore, Md. This consists of a reservoir, a rubber outlet pipe having a clamp or compress to close its bore by compression, means for releasing the compress, and a blow-pipe or stem communicating with the rubber tube below to compress.
- No. 432,436.—Trolling-spoon. Ernest F. Pflueger, Akron, Ohio. An ordinary hook with an elastic shield arranged in front of it, and extending laterally beyond the point of it to protect it from fouling or catching on objects in the water.
- No. 432,486.—Whip. Revilo T. Gowdy, Westfield, Mass. This is a whip having the internal portions within the outer plaited covering inclosed by a fabric, the longitudinal strands consisting of stiff hair, the outer plaited covering being inclosed by a fabric of hair-cloth having a layer of rubber or gutta percha thereon.
- No. 429,412.—Valve Seat; Roscoe Bean, Springfield, Ohio. This consists of a valve seat made of an India rubber annulus and a filling. A part of the filling is enclosed within the rubber, and a part of which is formed around the centre to form the seat proper and to also form a sediment receptacle between the elevated portion and the rubber.
- No. 429,416.—Cycle Handle; Harry H. Brown, Wappinger's Falls, N. Y. This is a cycle handle made up of a wooden core, having a bore extending throughout it and a rubber covering for the core, the covering having open ends and annular shoulders resting against and concealing the ends of the core.
- No. 429,429.—Shoe; Lewis Eckhardt, Homburg-vor-der-Höhe, Germany. The main sole of this shoe is provided with holes, into which are headed elastic plugs, their heads bearing on the inner surface and against the insole, forming air spaces. In other words, an elasticity is given to the sole, and there is also a certain amount of ventilation.
- No. 429,653.—Husking gloves; Lewis J. Sholder, Cleveland, Ohio. As specifications do not give material of which this glove is made, and as we know that in many factories rubber husking gloves are made, we mention this. The novelty of this is, the glove is provided with loops formed on its working surface and constructed so as to hold a husking knife in place while at work.
- No. 429,704.—An ink eraser; Oysten M. Solberg, La Crosse, Wis. This is designed to supersede the rubber eraser, and consists of an ink-erasing blotter, which is a flat sheet of blotting paper charged with tartaric acid so as to erase pencil marks and ink marks.
- No. 429,944.—Ventilated Rubber Shoes; James H. McKechnie, Granby, Quebec, Canada. A rubber boot or shoe having a ventilated channel, communicating with the interior of the boot or shoe by a series of openings formed at the inside and along the line of the channel.
- No. 430,195.—Removable and Adjustable Wash-bowl Lining; Frederick Reimers, Lincoln, Neb. This is a lining for a wash-bowl, composed of flexible water-proof material, such as gossamer rubber, made to fit the interior of the bowl and extend over its rim. Its upper edge is provided with an elastic band adapted to hold the lining in place upon the rim of the bowl.

- No. 430,285.—Bottle Stopper; Charles C. Hawley, Newark, N. J. This stopper consists of a button or body portion, a wire bail screwed to it, a rubber disk loosely arranged and held in position by an eye on the top of the metal body, provided with a re-inforced upper surface and projection on the underside of the body for removing said stopple entirely from the body of the bottle.
- No. 430,628.—Curry Comb. Alexander C. Decker, Keokuk, Iowa. A comb consisting of a flexible back, and with a series of independent toothed plates secured to it, separated from each other by continuous open spaces extending from end to end and from side to side of the back. This flexible back may be of rubber or of other material.
- No. 430,651.—Shoe knife. Isaac P. Hyde, Southbridge, Mass. This consists of one of the separable handles so popular among rubber shoe cutters. It has an adjustable screw with a T-shaped head, a pair of grooved clamping jaws having cam-shaped projections near their ends for holding the blade of the knife, and so arranged that the movement throughout the length of the groove shall be equal and uniform.
- No. 430,882.—Cutting-machine. James O. Purnell, Pittsfield, Mass. A two roll machine, one roll being a cutting cylinder which has flanged knives secured by eccentric-headed screws and surrounded by rings of elastic material. This cutting cylinder runs on a soft metal cylinder, which is practically a cutting block, so that the material to be cut may be fed through in a continuous sheet.
- No. 430,928.—Device for administering medicine to animals. Wm. H. H. Doty, Paterson, N. J. This consists of a metal tube in which the medicine is to be placed, and which is connected with a rubber bulb that, upon being pressed, shoots the pellet down the animal's throat.
- No. 430,958.—Vulcanized Plastic Compound. William Kiel, Butler, N. J. A hard vulcanized plastic compound consisting of crude rubber, sulphur, and mineral oil, the sulphur being not less than approximately eighty per cent. of the sulphur by weight.
- No. 430,959.—Process of Manufacturing Vulcanized Plastic Compounds. Same inventor. A process of mixing together the sulphur and rubber, the sulphur being in the proportion stated in the former patent, and vulcanizing the compound at an initial temperature of not less than 300 degrees Fahrenheit.
- No. 430,982.—Shoe-fastener. Charles F. Ziegler, Bloomington, Ill. This consists of a single piece of leather, or a strip of rubber cloth, or other material, slitted in the centre lengthwise, and having the lower section cut and shortened, the ends secured together, thereby forming a short section to hold the front part of the heel of a rubber shoe or slipper, the longer sections engaging the back of the head, and the free ends fastened around the instep.
- No. 431,084.—Fountain-syringe. Charles A. Tatum, New York. This is in brief a combination of a fountain-syringe with the box in which it is ordinarily packed. It is so arranged that the upper and lower covers of the box being opened the rubber reservoir may be easily filled, the tube leading from the bottom to it, and when through using it is folded into the box again and very easily packed away.
- No. 431,104.—Protective Covering for Electric Cables. John H. Cheever, New York. An insulating compound for electric conductors and cables consisting of rubber, plumbago, asbestos and sulphur.
- No. 431,223.—Rubber Tire for Wheels. Albert Claypool, Toledo, Ohio. A rubber tire having a concave base, a channel or perforation in the circumference above the concavity, and an opening from the channel to the outer surface of the tire. In combination with this is a shoulder on each side of the tire and a tightening band within the channel for holding the tire in place.
- No. 431,512.—Tire for Vehicle Wheels. Howard N. Du Bois, Philadelphia, Pa. This is one of the patents of the Du Bois Manufacturing Co., and consists of a vehicle-wheel having a channelled plate and elastic cushion set therein, and an outside surrounding tire, the latter provided with a semi-cylindrical tongue which enters a groove in the rubber fitted for it, while flanges embrace the sides of the same. The tire, with its tongue and flanges, are set by a special process which is the property of the Du Bois Manufacturing Co.
- No. 431,587.—Case for Holding and Exhibiting Oil-cloths. Edward E. Jandrey, Neenah, Wis. We mention this as being a case that may be used for exhibiting various styles of rubber cloth that are in the roll in rubber stores. As most of the rubber stores are also carrying table oil-cloth it may interest them to know of this invention.
- No. 431,646.—Composition for the Soles of Boots and Shoes. Wm. A. Burrows, Piccadilly, England. A composition made up of leather flock, water, gelatine and chrome-alum.
- No. 431,712.—Art of Making Gossamer Water-proof Fabrics. Theodore H. Videto, Hudson, Mass. This embraces the usual manner of coating cloth with successive films of rubber in solution, dull-finishing the surface and rendering it non-adhesive by applying dry farinaceous material, and then, which is more particularly the subject of the patent, imprinting various figures on the surface by means of a revolving roll.
- No. 431,866.—Brush. George A. Barnes, New Haven, Conn. A brush or scrubbing tablet composed of a light bulky core, which has a thin moulded rubber envelope inclosing it and sealing it in. The rubber envelope has a tooth surface, or is configured in low relief.
- No. 432,005.—Water-proof Gossamer Fabric. Theodore H. Videto, South Framingham, Mass. This claim is for an improved gossamer fabric, consisting of a foundation of textile material, having on one side a velvety compound, with a suitable light on contrasting figure in such compound imprinted and superposed thereon and vulcanized.
- No. 432,149.—Rubber Shoe. Carl Schummel, Hoboken, N. J. Combination of a rubber shoe with an outer sole, a perforated plate, spurs on the plate, rubber plugs fitted within the openings of the plate, so as to close the same and produce an even upper surface, an insole above the plate and the plugs, the plugs being united at their upper and lower faces, respectively, to the insole and the shoe sole, which prevents the sagging of the insole.
- No. 432,161.—Covering for Pipes. Hiram M. Hanmore, Santa Cruz, Cal. A covering for pipes, boilers, vulcanizers, etc., made of fossil-meal, carbonate of magnesia and fibre.
- No. 432,252.—Clothes Wringer. Thomas W. Stone, Columbus, Ohio. This is a difficult thing to describe without a cut. It is merely a simplification of the ordinary wringer, and we draw it to the attention of the rubber trade because rubber rolls are used in it.
- No. 432,326.—Upper. Richard Nagle, Lynn, Mass. A boot or shoe having a fold or plait arranged in its upper between the toe and heel portions thereof, this plait being disposed between the soles outside of the sole seam and an elastic sheet secured to the inner face of the upper across the plait.

How to Test Rubber Hose.

AS "the proof of the pudding is in the eating," so the test of the rubber is in its stretching. A little work containing directions for testing rubber hose, copyrighted and pub-

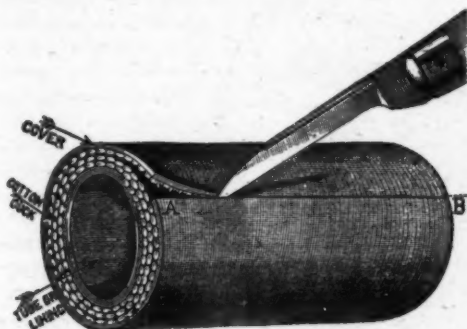


FIG. 1.

lished by Stephen Ballard & Co., of New York, a few years ago, is now out of print, but the suggestions it contained were

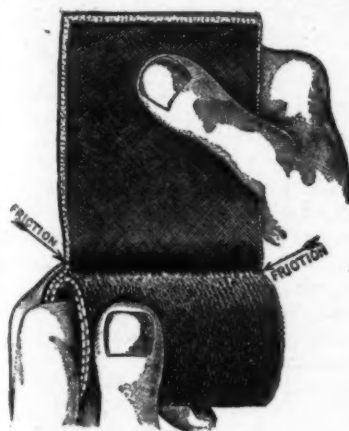


FIG. 2.

Showing a Good Hose Friction.

market, by which so many people are imposed upon. We

therefore urge all dealers to see that their hose shall stand these tests, and not only to test the samples, which may be sent them, but also to test their hose when received from the manufacturers. By so doing, they, as well as consumers, will be greatly benefitted.

There are four terms used by manufacturers in describing rubber hose:

First. Cover.

Second. Duck.

Third. Tube or lining.

Fourth. Friction. (See Figs. 1 and 2.)

By cover is meant the outside coating of rubber, which is



FIG. 3.

put around the hose (see Fig. 1) and which protects it from injury when dragged over stones, pavements, and other rough surfaces. By duck is meant the cotton fabric upon which the hose is made (see Fig. 1). By tube and lining is meant the inside coating of rubber (see Fig. 1) which keeps the water from soaking through to the outside of the hose. By friction is meant the coating of rubber which is spread upon both sides of the cotton duck, and which causes the different layers to stick together when rolled up (see Fig. 2).



FIG. 4.

Showing the absence of any Friction, or where the Friction is so poor that it does not hold the layers of Cotton Duck together, but allows them to separate easily.

duck, all the pores of which should be thoroughly filled with this friction rubber (see Fig. 2). Whenever all the friction remains on one side of the duck, leaving the other side

bare, as in Fig. 3, or where the friction pulls off in spots, as also shown in Fig. 3, or where it does not stick at all, but allows the duck to separate easily (as shown in Fig. 4), leaving the duck black colored and with a glossy surface, always remember that such hose will give trouble, as it is comparatively worthless. Upon the friction always depends the durability of the hose. If the friction is poor, the hose will not last through one season, as the layers of cotton duck soon work loose, and rub against each other and the water finds its way to the outside covering of the hose, causing "pin holes," as well as larger leaks.

Second Test—Continue pulling the duck apart until the tube or lining is reached, and about three-quarters of its surface are left bare, then cut the lining lengthwise and test its elasticity, as shown in Fig. 5.

The linings should be elastic and allow of its being stretched without breaking, and after having been stretched should

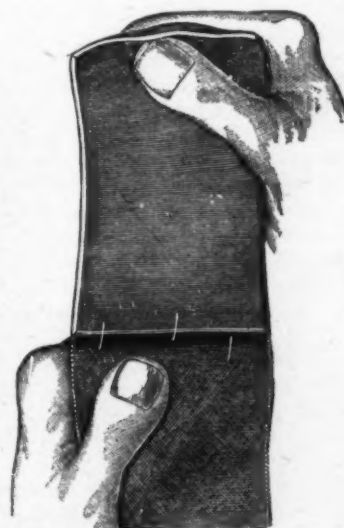


FIG. 5.

Showing a Good Elastic Hose Lining.

First Test—Cut a sample from the hose about one and one-half inches long, and with a sharp pen-knife cut along the line A B (Fig. 1) where the last layer of cotton duck ends, taking care not to cut through the next layer, and the top layer of the duck and unwind it. The different layers should stick tightly together, so that considerable force is required to pull them apart, and the friction or coating of rubber which holds the duck together should split and part remain coated on each side of the

spring back to its original length. Extra and Genesee quality hose linings should stretch at least *three* times their original lengths. A great deal of hose lining is made up of old shoes, car springs, etc., ground up and mixed with enough oil to make it soft, but you can always tell such stock, as it will be very brittle and break easily when stretched. All such lining is



FIG. 6.
Showing a Good Elastic Hose Cover.

worthless, as, having had no good rubber put into it when made, the water easily soaks through it, and when once through the lining it soon works its way through the cotton duck and cover to the outside surface. All good hose tube or lining must have enough good rubber in its composition to make it water-proof, and water-tight, when subjected to the pressure of the water-works where used. Sometimes in making this second test, when the hose is not sufficiently vulcanized, as it is called (*i. e.*, not having been heated long enough in the heater, or oven, when made), the tube is soft and its outside surfaces will be somewhat sticky when pressed together, and, in consequence of being poorly vulcanized, the lining when stretched will not break at first, but will appear to be somewhat elastic. You can always tell such inferior goods by noticing whether the tube *springs back* to its original length after having been stretched. If the hose has not been sufficiently vulcanized, the lining will be much longer after stretching, and will not feel elastic or springy. All such soft and flabby lining will always prove as defective as that which is hard and brittle.

Third Test—Cut a part of the cover loose from the duck (as shown in Fig. 6) and test its elasticity in the same manner as the tube or lining. It should be fully as elastic as the lining, and in extra and Genesee quality hose, should stretch *three times* its original length before breaking. If the cover is brittle and cracks, and breaks easily, it will soon be worn off from the duck in spots. This frequently happens with inferior hose, and when the duck is left bare it is exposed to injury whenever it is brought in contact with sharp stones, corners of buildings, fences, trees, etc., and is soon worn through, and a hole made in the hose.

We urge all dealers, whether they buy from us or not, to subject their hose to these tests and reject any and all that will not fulfill these conditions. *Always test your hose elsewhere than at the ends of each length*, because some manufacturers will

make the ends of the lengths of a good quality, while the remainder is made up of the cheapest and poorest.

HOW TO TEST COTTON HOSE.

First Test—Take a sample of the hose about one and one-half inches long and cut it through lengthwise and separate the

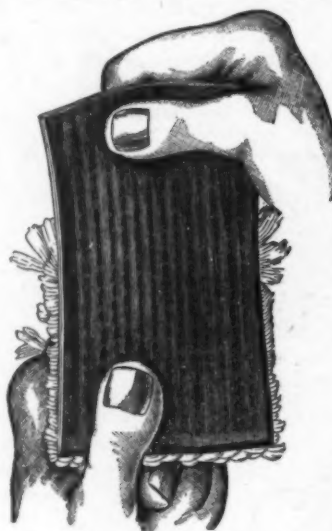


FIG. 8.
Showing a Good Elastic Cotton Hose Lining.

lining from the fabric (as shown in Fig. 7), noticing whether it sticks well to the cotton. If it does not, but pulls off easily, you can rest assured that such hose will always prove defective, as the lining will soon work loose from the fabric, and the water rapidly force its way to the outer surface.

Second Test—Test the elasticity of the tube or lining (as shown in Fig. 8). It should stretch at least twice its original length. If it will not stretch readily, but breaks easily, it proves that the tube has very little good rubber in its composition, but that it is made up of old rubber shoes, shoddy, etc. Such hose will always leak in a short time, as the water will soon force its way through the lining, and when once through that, the hose begins to leak. No such poor shoddy tube can remain water-proof long under the force of the water.

The lining in cotton hose must always be made of the best quality of rubber in order to be water-tight. See to it that your cotton hose has such a lining.

Rubber Movement at Para.

ONE of the Pará journals publishes detailed statistics of the rubber movement at that port for the first six months of 1890, compiled by the Companhia Mercantil do Pará, from which THE INDIA RUBBER WORLD has gleaned some figures which may be of interest to the American trade. Quantities are expressed, in the Pará tables, in kilograms, which are here converted into pounds. The list of exporters given, with the amount of their shipments, is as follows:

	To United States.	To Europe.	Total Pounds.
Pasinelli, Prilase & Co.	1,531,305	1,266,186	2,797,491
Compania Mercantil do Para.	1,842,801	696,696	2,539,497
La Rocque da Costa & Co.	1,366,739	677,085	2,043,824
Robinson & Norton.	1,450,522		1,450,522
J. Vianna & Co.	931,302	488,659	1,419,961
R. F. Sears & Co.	758,648	57,752	816,400
Singlehurst, Brockelhurst & Co.	530,275	191,514	721,789
W. Bramber & Co.	346,764	150,880	497,644
Denis Crouhan & Co.		297,990	297,990
Sundry shippers.	245,369	293,717	539,116
Shipped direct from Manáos	2,074,195	3,221,380	5,295,584
Total.	11,077,950	7,341,868	18,419,818

It will be seen that the United States absorbed 60 per cent. of the total exportations from Pará and Manáos, and about 70 per cent. of the shipments from Pará alone. A comparison of the quality of rubber imported by the United States and by European countries from Pará is shown in this table:

	United States.	Europe.	Total.
Fina (fine)	5,750,716	4,541,919	10,292,635
Entrefina (medium)	1,140,757	877,263	2,018,020
Sertamby (coarse)	3,483,646	1,569,673	5,053,319
Caucho.	702,831	353,014	1,055,845
Totals.	11,077,950	7,341,868	18,419,818

These figures have little bearing upon either the amount or quality of rubber manufactured in the different countries, since crude rubber is so extensively reshipped. Crude rubber which once reaches the United States is very apt to be manufactured here, but much of that consigned to Liverpool in time finds its way in a crude form to the United States. These figures, however, are meant only to record movements at Pará. The first destination, by ports, of these shipments is shown as follows:

	Pounds.
New York.....	11,077,950
Liverpool.....	6,535,929
Havre.....	751,007
Nantes.....	53,942
Lisbon.....	990
Total.....	18,419,818

The next table shows that the amount of the rubber shipments for the first half of 1890 has been above the average for the first six months of other years. They have been exceeded, in fact, only once in the past. The time embraced is from January 1st to July 1st:

	1890.	1889.	1888.	1887.	1886.
United States.....	11,077,950	10,694,200	10,593,900	7,112,600	8,577,800
Europe.....	7,341,868	8,377,600	6,308,400	6,817,800	4,768,600
Total.....	18,419,818	19,071,800	16,902,300	13,930,400	13,346,400

The figures above show a steady increase in the amount of Pará rubber shipped to the United States, though during five years past this increase has amounted to only 30 per cent, while the shipments to Europe in the first half of 1890 were 56 per cent. greater than for the same period five years previously. There is no means of knowing, however, how much of the latter finally found its way to America.

Now comes the question of how large the last Pará rubber crop really was, and the figures showing the receipts at Pará for the twelve months ended June 30, 1890, are given below, in comparison with the report for the year previous, which shows a shortage for 1889-90 of 1,452,000 pounds. The crop for the year just closed is, however the largest ever gathered in that country, with one exception. The figures by months are:

	1889-90.	1888-89.
July.....	1,474,000	1,474,000
August.....	2,244,000	2,398,000
September.....	2,486,000	2,576,000
October.....	3,432,000	3,476,000
November.....	3,008,000	3,606,000
December.....	3,916,000	3,806,000
January.....	5,126,000	6,380,000
February.....	2,882,000	3,256,000
March.....	3,740,000	3,168,000
April.....	1,914,000	2,068,000
May.....	1,452,000	1,628,000
June.....	1,408,000	1,408,000
Total.....	33,682,000	35,134,000

It may be of interest to add a list of the sources of the rubber received at Pará, the figures representing pounds and showing the product for the year just ended:

Islands.....	13,820,996
Madeira, including Bolivia.....	3,438,697
Manaos and in transit.....	7,295,580
Peru, including cauchó.....	2,669,713
Paraná.....	3,324,983
Jurua.....	1,223,755
Itaituba.....	730,844
Xingu and Jary.....	1,237,432
Total.....	33,682,000

THE International Fair to be held in St. John, N. B., from September 24th to October 24th promises to be an interesting occasion, and manufacturers in the United States are freely invited to make displays. The rubber trade of St. John has not been lacking in interest in the organization of the fair, and Messrs. Estey & Co., who have favored us with a copy of the premium list, offer their services to rubber companies at a distance desiring to become exhibitors. Mr. James A. Estey is a member of the board of directors.

Trade Notes.

THE recent fires at Colchester, Conn., which are thought by some to be of incendiary origin, have so alarmed the community that new watchmen have been put on duty, and at the Colchester Rubber Works the orders have been given to shoot any one found prowling about the works at night.

—The Reading (Mass.) Rubber Mills, whose product Joy, Langdon & Co. are selling, are running on full time and making some very fine goods in the way of carriage cloth and sheetings.

—Mr. C. H. Foster, the sewing machine expert, who was formerly with the Love Manufacturing Co., has become connected with the Singer Manufacturing Co., and has charge of special sewing machines of his own invention, some of which are especially adapted to rubber work.

—A very enjoyable occasion was that of the recent outing of the employes of the Stoughton & Hall Rubber Co., which was given them by the company to show the appreciation of the conscientious work done by them during the year past. Over 300 people were in the party, and were carried by a special train from Stoughton to Nantasket. There, at 1 o'clock in the afternoon, they had a fine dinner served them, and after that a series of amusements which were carefully gotten up to fit the time and the occasion. Indeed the thought of this picnic will for a long time remain with the help and render them much more valuable to their employers.

—Perry, Stevens & Co., of Chicago, have been succeeded by the American Rubber Co., with Edgar G. Stearns in charge. They will, hereafter, handle only rubber boots and shoes and rubber mackintosh, gossamer and oil clothing, having sold out their sundries business to W. T. Rawlings & Co., who represent the Ideal Rubber Co. In their remodeled salesrooms, at No. 201 Madison Street, the American Co. will carry a largely increased stock of rubber boots and shoes. J. H. Thompson, for many years in the rubber trade, has become associated with the Chicago branch of the American Co., as has also F. H. Barlow, formerly with the Southern Rubber Co. The salesmen of the Chicago branch came East with Mr. Stearns early in the month to see the manufactories of the American Co.

—A boat club, with James Deshler, manager of the Meyer Rubber Works, as president, and Postmaster W. H. Price as vice-president, has been formed in New Brunswick, N. J., and promises to be a strong one. It is expected Rutgers College will start an opposition club.

—After standing unoccupied for more than two years the old factory of the Union India-Rubber Co., of No. 487 Broadway, New York, located at One Hundred and Thirty-third Street and Park Avenue, has been leased by the Rosevelt Organ Co. for a term of ten years, with the privilege of twenty more. The factory is a four-story and basement brick structure, and occupies the entire square. When the rubber company moved their works to Middleton, Conn., about two years ago, they left most of their machinery in the building. The greater part of it has become practically worthless as machinery, on account of recent improvements in rubber manufacture.

—The Hodgman Rubber Co. are putting on the roof of their new rubber factory at Mount Vernon, N. Y. The new machinery is being placed in position, and the works will start up early in September. The increased facilities and the many improvements inaugurated proves almost a reconciliation to the loss of their former factory.

—The Newton Rubber Co., of Boston, Mass., have removed their offices from No. 292 Devonshire Street, to the new Shoe and Leather Exchange Building, No. 116 Bedford Street. Their new quarters are particularly commodious and elegant, and being in one of the few office buildings in Boston where the best of accommodations are to be found, they issue a warm invitation to all members of the trade to look in upon them.

—The Boston Rubber Shoe Co. were announced to close their factories at Edgeworth and the Fells, August 8th, for two weeks, to give the employes their usual vacation.

—Mr. H. F. Taintor, the well-known whiting man, is spending this month at his summering place on the Rhode Island shore, Mr. Angell, his right hand man, putting off his vacation until September, when he expects to put in several weeks at his favorite occupation, which is fishing.

—Mr. J. O. Stokes, the treasurer and manager of the Home Rubber Co., Trenton, N. J., spends the heated term at the Columbia Hotel, Belmont, N. J., that is, he is there evenings and Sundays. During the day, however, he is to be found at his place of business in Trenton.

—Mr. C. Edward Murray, of Murray, Whitehead & Murray, is at Island Heights, a charming watering-place on the Jersey coast.

—Mr. Linburg, of the United Rubber Co. of Trenton, N. J., is spending the heated term in the mountains near Delaware Water Gap.

—Messrs. Brook, Oliphant & Co., of Trenton, N. J., are adding quite a substantial building to their already large plant. This makes the third addition within the year, which is an eloquent commentary upon the popularity of the goods they are producing.

—The New Jersey Car Spring and Rubber Co., of Jersey City, N. J., are putting an additional story upon all of the buildings of their plant on Brunswick Avenue. Although manufacturing a large quantity of goods, the company have felt themselves for a number of months exceedingly cramped for room, and the present addition will give them an opportunity not only to increase their output, but to work with very much more satisfaction to themselves and their large force of workmen.

—The use of celluloid and zylonite for piano keys, and everything hitherto calling for ivory, is constantly growing. Smokers' articles call for imitations, and these are produced in elegant imitations of amber. The celluloid interests have placed the sale of these goods exclusively in the hands of William Demuth, of New York. The elegance of all these wares appeal to the attention of all lovers of the artistic. The plated ware manufacturers use a great deal of these fibres, Landers, Frary & Clark, of New York, making them up in imitation of antique ivory, grain ivory, etc. The designs are some of them finely moulded into dragon heads, stag sets, flower patterns, and so on. The cost compared with ivory is about one-eighth, and the price of a set of cutlery is reduced about one-half by the use of these substitutes, which answer every purpose both in utility and appearance.

—The Boston Rubber Co. have been granted permission to erect a four-story brick warehouse, 60x50 feet, on the corner of Wharf and Winnisimmet Streets, also to construct a passageway over Wharf Street, to connect with the new building with their present factory.

—Mr. Judson Williams, of the Boston Rubber Shoe Co., sailed for Europe on a pleasure trip too late for mention in our last issue.

—The Meyer Rubber Co., of New York, expects to shut down for a short time for repairs, oiling, etc. The company have lately secured a large army contract for two-buckle snow excluders, which had to be delivered August 15th, and this has pieced out the season. They are now putting onto the market an elegant boot with a top in a new design, consisting of a fine basket engraving, which will take the place of the old pebble. The old pebble is irregular in its lines; in the new design the minute checks are uniform, and exceedingly neat in appearance. A "kid" top is also being brought out.

—The Hodgman Rubber Co., of New York, are now manufacturing a life collar and belt, similar to that made some time ago by the late Mayall Co. There has been a good demand for these goods in recent years, but no one has known where to find them, but now the Hodgman Rubber Co. are prepared to supply all requirements in this line. They are not so unwieldy as the ordinary life preserver, and more readily attached and kept in place on the person. A good swimmer, who generally despises safeguards of this description, would not be hampered by their use, and would find them of much value in the light of an extra precaution.

—Mr. T. Martin, of T. Martin & Co., New York, has returned from a trip to his factories, and among the members of the Web Association, of which he is chairman. The prices of spun rubber have been advanced from \$1.63 to \$1.75 per pound, an advance warranted by the high price of Pará. Business in webs had been unusually good until this advance was made, since then a decided lull has taken place in the trade. The mills all over the country are running light, and production is small. It takes a season for the public to become educated to high prices, and it is thought that in September or October a turn will take place for the better. Stocks are low, and there is no pressure to sell.

—Mr. Harrison C. Frost, the genial and active representative of the Revere Rubber Co., of Boston, has been spending some holidays in St. John, N. B. He is delighted with his first visit, and says the climate is perfect.

—The Hon. Frank A. Magowan, of the Trenton Rubber Works, summers at Spring Lake, N. J.

—The rubber button men arranged for a new price list to take effect August 1st. The high price of rubber called for this advance. The demand for rubber buttons for men's clothes is constantly growing, but women, in consequence of a freak of fashion, have abandoned the use of ornamental buttons. How to steer them back again into the lavish display of a few months since is worthy of the efforts of a general.

—The Newell Brothers Manufacturing Co., of New York, have brought out a very nice line of brown rubber imitation of cloth centre and cloth diagonals, and also fine ribbed buttons. A perfect imitation is all that was needed to bring these excellent wearing buttons into prominence in the clothing trade.

—The past month has not been very good weather for rubber manufacturing, and many mills are shutting down for a short time. Warm, humid days interfere with the making of good rubber.

—Mr. Matthew Hawe, treasurer of the Gutta-percha and Rubber Manufacturing Co., of New York, is spending his vacation in Newfoundland.

—Mr. J. F. Hodgman, President of the Hodgman Rubber Co., New York, is at present sojourning at the Pacific House, in the White Mountains.

—Recent letters from E. S. Converse, treasurer of the Boston Rubber Shoe Co., leave no doubt that he is greatly enjoying his European trip. He is not expected to return until late in September or early in October.

—George R. Allen has resigned the treasurership of the Brook Haven Rubber Co., and has been succeeded by C. W. Hoskins, of the Manhattan Trust Co., but the factory has been shut down indefinitely.

—Mr. C. Edward Murray and Mr. R. R. Whitehead, of the firm of Murray, Whitehead & Murray, are spending the heated term at their cottages at Sea Girt, which is near enough to Trenton to allow them to spend part of the day at their factories and the rest of it at the shore.

—Manager Gooch, of the Rubber Valve and Spring Co., of Trenton, N. J., is spending this month in the State of Maine. As Mr. Gooch is a native of New Hampshire, this will be almost like getting home, and we trust he will have the best of good times.

—Mr. W. B. Hardy, general manager of the Revere Rubber Co., held a conference in New York with the managers of the Pittsburg, Buffalo and New York offices on August 8. Conferences of this character among the leading widely scattered managers of a large concern rarely fail to produce excellent results.

—Among the rubber-goods buyers who floated into New York on the excursion of the Grand Army people to Boston were George B. Peck, of Kansas City; C. E. James, of J. M. High & Co., Atlanta, Ga.; S. Greenspau, of Nashville, Tenn.; C. D. Minter, of Sedalia, Mo.; J. W. Patterson, of Natchez, Miss.; R. McMichael, of Lexington, Ky.; C. Armkecht, of Burlington, Iowa; J. S. Taylor, of Dallas, Texas; H. A. Guthrie, of Lexington, Ky.; Solomon Fein, of Milwaukee, Wis.; C. Kerrian, of Charleston, S. C.; W. Beall, of Gallipolis, Ohio; G. Weber, of Oshkosh, Wis.; D. J. Morrison, of Savannah, Ga.; A. Lazarus, of Macon, Ga., and W. H. Wright, of Ogden, Utah.

—The Chalmers-Spence Co., of New York, manufacturers of asbestos goods, have issued an illustrated catalogue of the different wares they manufacture, with full description and a price list. A peculiarity of the catalogue consists of the annotations to the text, guiding the eye readily to the subject desired. The catalogue is an octavo of twenty-four pages, every line of which is interesting to the reader seeking information in this not very old industry. The company is well located in large offices at Nos. 59-61 Liberty Street, with its factory at the foot of Eighth Street.

—Lamkin & Foster, of No. 174 Congress Street, Boston, the New England agents for the India Rubber Glove Co., publish a very interesting price list, and in addition to this, a discount list, which enables the retailer to do away with the figuring of discounts and to simply look at the tables indicated and have his figuring all done for him. For many men who are not fond of figures this will indeed be highly valued.

—Mr. B. D. Harvey, who was one of the first salesmen to introduce the goods of the India Rubber Glove Co. through New England, has, after spending some time on leather shoes, returned to his first love, and is handling rubber shoes for B. F. Jacquith.

—The Celluloid Novelty Co., of New York, have gotten up some nicely painted parlor balls for children. For all practical purposes they are as good as rubber, bounding perfectly, and will not damage window glass.

—From the New York Insulated Wire Co. comes a new edition of their catalogue of telegraph, telephone and electric light wires and cables, handsomely printed and bound in pocket size. The special feature of the products of this establishment is the Grimshaw White Core, the patents for which are owned by the company. The Grimshaw Patent White Core wires and cables, it is claimed, resist acids, heat, cold, moisture and sewer gases. They are of the highest insulation, do not crack, soften or deteriorate, and retain their pliability and insulating qualities under all conditions of exposure. Many interesting tables of weights and measurements are given, together with "Simple Definitions and Formulæ for Unprofessional Readers," especially in relation to electricity.

—A long box containing a section of suction hose for our English cousins was tendered to the Cunard Line for shipment the other day. It was too long to go into the hold, and was declined. The secretary of the company, trying to ship it, imagined he saw a trunk and a pair of ivory tusks rapidly growing on the package after he learned the reason of its refusal. Towing seems to be his only resource.

—Reports have appeared of late in newspapers announcing the intended removal of the Mattson Rubber Co. from its present quarters in College Place, New York. As the Mattson people are owners of the property, they claim it would be unwise to move, and say they have no intention of doing so.

—Mr. William DeLong, of Delong, Betts & Co., the New York brokers, is on a pleasure trip in Europe. He now expects to return in about a month.

—The New York City fire department used last year 30,000 feet of Maltese Cross hose, made by the Gutta Percha and Rubber Manufacturing Co., and have taken their contract of 21,000 feet this year. This department favors a three-inch hose, and in their successful use of it, have led the way to cause the adoption of this size in other metropolitan and small cities.

—The Boston Rubber Shoe Co.'s ventilating tennis shoe is having quite a boom, especially since the Boston baseball club and the Princeton baseball team have endorsed and adopted it.

—Mr. Persse Deverell, who travels for the Lake Shore Rubber Works, Erie, Pa., is not only one of the most active and ever present travelling men in the rubber trade, but in addition to that he is a farmer of the ideal type. Down on the James River, in the prettiest part of the country that any portion of the United States can boast, not barring the Hudson even, he has bought himself a small farm where he is conducting a business of fruit raising and general farming upon both an extensive and profitable scale and where he has one of the loveliest homes for a family of growing children that any man could wish for. "Every once in a while," he says, "Whitehead drops me a line saying that he has about caught up to my orders, and he guesses it would perhaps be well for me to sell some more goods, and so I take my gripsack out and go, and in a short time I have him so loaded again that I can go off and enjoy myself at farm work until I get as brown as a Granger, as you see me now. It is a good plan, too. If a man stays on the road all the time, year in and year out, he cannot sell so many goods, because he does not feel like it. I get a good solid rest, and I always consider farm work rest to a man who likes it, then I go out full of vigor and vim, and the individual result is good feeling with my customers, and good sales for the Lake Shore." This sort of talk has made one gentleman about THE INDIA RUBBER WORLD so enthusiastic that he is thinking of organizing a colony to go down there and make a settlement. Will you join it?

—The Eastern Electric Cable Co. have just added a new building to their Roxbury plant. This is the third addition they have made within the past twelve months, all of which have been made necessary by the vast increase of their business.

Artistic Rubber Goods.

MARVELLOUSLY handsome are the silk and rubber Macintoshes that the rubber goods stores are showing now. Rubber goods have high claims to beauty as well as usefulness, and a look through a rubber store well repays the shopper, who will, unless she has kept pace with the progress in this line of manufacture, be surprised at the variety of articles, and not only their fitness, but their elegance.

That the Metropolitan Rubber Co. is deservedly popular with the retail tradesman is made apparent by the rapid growth of their business. Their present salesrooms, Nos. 649 and 651 Broadway, are replete with goods a finer assortment than which is kept by no firm in New York or any other city. Among the many handsome garments manufactured by this firm may be mentioned the "New York Wrap," "Parisian Wrap," the "Wallingford," Double Texture Coat, the "Langtry," "Brown-Potter," Newmarket, Dolmans, Single Texture Coats, etc., all of which bear evidence of having received the most studious attention of skillful designers and careful workmen. Their Macintoshes so closely resemble the finest of high-grade fair weather apparel that with great difficulty can one be distinguished from the other. It is the laudable aim of this company to keep their Macintosh department fully supplied with newly designed garments of finest fabrics and careful workmanship.

Their exhibit of heavy and light weight rubber clothing is also well worth the attention of dealers in waterproof goods.

Review of the Rubber Market.

THE rubber market has been very dull for the past month, both on account of the heated term, which is having the usual effect upon trade, and because of a halt in the buying of manufactures of rubber since the prices were advanced in sympathy with crude gum. There is also evident the cumulative effects of two or more bad seasons in one or two important lines of rubber goods. It is doubtful whether 100,000 pounds of crude rubber have changed hands in the New York market within a month with the exception, perhaps, of deliveries growing out of the sale of 1,200,000 pounds mentioned in this paper last month. This amount which has not, it is to be imagined, gone very far into consumption, is held in very strong hands, and should the market advance normally in the future would not come to any considerable extent upon the market. It is idle to prognosticate, what any syndicate with large stocks under control may do in any turn in events which the near future may have in store.

The statistical position of rubber is generously acknowledged to be a strong one. Only one steamer is afloat with rubber for this market—the *Justice*, which sailed from Pará August 3d, carrying 100 tons, fine and coarse. Three or four other steamers are loading for the United States, which may be expected to arrive during the next thirty days. Pará cables to private parties in New York bearing date of August 7th, report sales of fine at 3050 reis for fine, and 2050 for coarse, with exchange at 23½. The cable further said that holders were not free sellers.

The London market has greater strength, if anything, than here. Sales have been made lately for October delivery at 46 pence, and the outlook is said to be for higher prices. On July 4th, the total stocks of all kinds in England were 1610 tons against 2703 tons in 1889.

The supply of Centrals in this country is still light, arrivals have been small and are going into store. Africans and East Indians have been dull until within ten days, since when an activity has sprung up which augurs well for these grades. It is very probable that this will prove to be the safety valve of the market in preventing abnormal prices for the higher grades. Of course there are many uses of rubber which demand the best of Pará. Druggists' sundries to a large extent, spun rubber, underground insulation, and so on call for a grade in which there is no chance of flaw, but manufacturers are busily investigating the lower qualities in the hope of finding a practical equivalent in the make up of goods for which the public have not yet gotten ready to pay the late advance in prices.

Sales have been made in five and ten ton lots, of the best quality Sierra Leone at 55 cts., small ball, guaranteed from flake at 52 cts., ordinary flake at 38 cts., third quality; Ceará scrap at 30 cts., Accra biscuits, first quality at 60 cts, and Mangaberra, first quality at 48 cts.

The latest quotations in the New York market are:

Para, fine.....	91-92	Loando, Niggers.....	65
Para, coarse.....	66-67	Sierra Leone.....	54-56
Caucho (Peruvian) strip.....	58	Benguela.....	59-60
Caucho (Peruvian) ball.....	64	Congo Ball.....	54-55
Mangaberra, sheet.....	48-54	Small Ball.....	50-52
Esmeralda, sausage.....	64	Soft Ball.....	40-43
Esmeralda, strip.....	60	Flake, Lump and Ord.....	38-41
Guayaquil, strip.....	45-55	Mozambique, spindles.....	
Panama, strip.....	58	Mozambique, red ball.....	54
Virgin Scrap.....	70-73	Mozambique, white ball.....	50
Cartagena, strip.....	40	Madagascar, pinky.....	73-74
Nicaragua, scrap.....	62-63	Madagascar, black.....	53-54
Nicaragua, sheet.....	60-61	Borneo.....	45-67
Mexican, scrap.....	60-61	Gutta percha, fine grade.....	125
Mexican, sheet.....	58	Gutta percha, medium.....	70-80
Guatemala, sheet.....	53-56	Gutta percha, hard white.....	75
Thimbles.....	51	Gutta percha, lower sorts.....	30
Tongues.....	53		

The demand for gutta percha is very limited. Prices are firm, but a shade lower. Fine grades are in light request, and stocks are for the moment plentiful. It is not known that there are any shipments on the way to this port; but as the business in this country at the moment is of a retail character, this factor is of little general interest. Some criticism has been made from two or three out of town sources in regard to the late quotations given in these goods, but our authority is ready to deliver quite good-sized lots at the further reduction we make in this issue.

The discrepancy apparent to our out of town readers arises probably from the fact that the market in New York is at present wholly retail in its character. When one wants to sell in New York a downright shading takes place. The fact that a leading broker in New York City oftentimes peddles out gutta percha in ten pound lots to manufacturers who stand by watching the scales, and carefully examining the goods, shows how difficult it is to keep track of the bargains that may be made between buyer and seller day after day. In Europe there is a large volume of business done, this country importing a great deal of the manufactures.

We append late Boston quotations, which probably represent the market more fairly to parties who cannot watch the petty dealings in New York day after day:

Fine grade.....	\$1.40@1.60
Medium.....	1.00@1.25
Hard white prime.....	1.00@1.10
Hard white, second quality.....	75@85
Lower grades.....	60c. up.

The demand for manufactured rubber in the various trades is very irregular. The mechanical rubber goods manufacturers

have no difficulty in maintaining their advance, but have decided to wait until September before they consider a further step in that direction. Business is fairly good for this season, and the future is hopeful. In fire hose there is a fair business. The dry season, it is expected, will call for a better demand for garden hose, as stocks which have been so long near the consumer are being disposed of. There is a good export demand for these goods. Belting is in good steady demand. Some of the larger firms are making preparations for an active aggressive campaign during the coming season in mechanical goods.

Boots and shoes are dull. The season commenced early during the spring, but is now quiet, buyers and sellers both being indifferent until future events shall have developed and given a bent to the market. The tennis shoes trade, the peculiarity of the season, has subsided. The mills are now idle in many cases. The button men advanced prices five to ten cents August 1st, but the demand since has been disappointing. They believe, however, that sufficient time has not developed for a fair test of the new prices. The web people have made a further advance from \$1.63 to \$1.75 for spun rubber, and the demand has also been disappointing. The mills are now running on scant time, and nothing can be done until people become accustomed to the higher prices. There is some irregularity in the clothing business. Some of the manufacturers are so anxious to make sales that they get as near to the customer

as possible. The difference in qualities of these goods, and the ignorance of the wearer in the technicalities and make up of this sort of apparel prove to be a feature somewhat perplexing to the manufacturer of a superior article, and this state of affairs will not probably be changed until a better education of the public takes place.

Asbestos is abnormally high. The mills are sold ahead for some time, and parties who are short on their contracts, or in need of a small lot for a new demand are having great difficulty in getting the crude. The floating demand is, however, limited. Prices are:

No. 1.....	\$150.00 @ \$250.00 per ton.
No. 2.....	80.00 @ 100.00 per ton.
No. 3.....	50.00 @ 75.00 per ton.

Messrs. Simpson & Beers, brokers in crude India rubber and commercial paper, report: "Exports of gold have been a prominent feature during the past month, upsetting our money market, which previously was comfortably easy, owing to the very large purchases of bonds made by the Secretary of the Treasury, combined with the July interest disbursements. We placed a fair amount of rubber paper during July at 6 and 6½ per cent. mostly, and a good part about four months' time. Some, however, with six months to run. The prospect is for a steady 6 per cent. market, until the end of the year, but nothing under this rate, as a large amount of money will be needed, for some months, to move the crops."

Free Want Department.

Manufacturers in need of Managers, Superintendents, Foremen and help generally, are invited to make free use of this Department; and all persons seeking situations in the rubber or electrical trades, are cordially invited to do likewise. Advertisements of Machinery and Supplies Wanted will also be inserted free of charge. And, in all cases, if the first insertion of the advertisement does not accomplish the result, its repetition is desired by us.

WANTED—A hard-rubber man, must understand compounding and manufacturing thoroughly. Address "D," P. O. Box 1325, Boston, Mass.

WANTED—A line of rubber samples, druggists' and Mackintoshes. Address "777," INDIA RUBBER WORLD.

WANTED—A position as travelling salesman, with some manufacturer of India rubber goods, by a commercial traveler, who has had several years' experience in that line. Has an extensive acquaintance with the jobbing trade, and is acquainted with the full line of rubber goods; first-class unquestioned references. Address "RUBBER SALESMAN," INDIA RUBBER WORLD.

WANTED—Man thoroughly posted in the manufacture of hard rubber. Address "F. C. T.," INDIA RUBBER WORLD.

WANTED—A good hose maker. One who is generally posted on general matters in mechanical rubber goods. Must be a sober man and one not afraid to work. Address A. A. A. INDIA RUBBER WORLD OFFICE.

WANTED—Position by young man of 28, who has had ten years experience in mill-work, several of which were spent in whitening and pulp mills. References furnished. "J. W. G.," INDIA RUBBER WORLD OFFICE.

WANTED—Situation as foreman to reclaim old rubber by the acid process. Grinding, sheeting and devulcanizing thoroughly understood. Best of references. Address "W. B.," INDIA RUBBER WORLD OFFICE.

WANTED—Experienced gossamer stitchers. Steady work and the best pay. STOUGHTON RUBBER CO., Stoughton, Mass.

POWER TO LET—In a thriving Massachusetts town but a few miles out of Boston, the advertiser has plenty of power, which can be secured at the lowest possible terms. We should like to correspond with several manufacturing concerns upon this subject. Address "R.," INDIA RUBBER WORLD OFFICE.

WANTED—A good second-hand press, medium size, for mould goods, must be cheap. Address "H.," INDIA RUBBER WORLD OFFICE.

WANTED—By a man with 28 years experience as super or foreman at making rubber clothing. Understands all the latest improvements, also mechanical rubber. Reclaims own rubber and makes own substitute. Address "W. R.," INDIA RUBBER WORLD OFFICE.

WANTED—A party to take an interest in a gossamer rubber business, either active or special. Fifteen to twenty thousand dollars required. Address, G. W. LOCKWOOD, 557 Broadway, N. Y.

SITUATION WANTED—A young man who thoroughly understands the manufacture of rubber clothing in all its branches, good knowledge of belting, hose and mechanical goods, 10 years experience, seeks a position as superintendent or foreman. Is a good bookkeeper and business manager. First class references. Address, "NO BLOWER," INDIA RUBBER WORLD OFFICE.

WANTED—A first-class calender man on mechanical goods. Address, "P. L. S.," INDIA RUBBER WORLD OFFICE.

FOR SALE—A Tubing Machine with plain dies, ½ to 1 inch, all in good order. Price, \$100. Address, "S. B.," INDIA RUBBER WORLD OFFICE.

WANTED POSITION—A young man 28 years of age, thoroughly posted in every detail of the retail and jobbing rubber business desires a position as manager of a wholesale and retail business in a live city, or would represent a manufacturer in any particular branch of the rubber trade. Has had an experience as a travelling salesman, also as manager of retail and wholesale house. Is an accountant and bookkeeper, but does not wish to do practical work on accounts. Can furnish best references including present employers. Address "R. 4.," INDIA RUBBER WORLD OFFICE.

WANTED—A full line of rubber samples of mechanical rubber goods, druggists and stationery goods, mackintoshes and domestic goods, with price lists, special discounts, circular, etc., from various manufacturers for West Virginia trade. Novelties, shoes and clothing especially wanted. Address E. A. BURNSIDE, Lock Box 8, Point Pleasant, W. Va.

FOR SALE OR TO LET—A fine rubber factory, which has new buildings, with much of the machinery still standing, and which is situated close to Boston. There are 4 to 12 acres of land as desired with the plant and 30,000 ft. of floor space in the mill buildings all one story. The buildings contain a Putnam engine, 18x42; 2 boilers, 5x16; steam pumps; injectors; automatic sprinklers, sidetrack, etc., etc. The best foundations are in place for calenders, mills, washers, etc. This plant will be sold or let at the most reasonable terms. Apply to Frank E. Hall, No. 67 Chauncy Street, Boston, Mass.

FOR SALE—A perfectly new Calender, rolls 6½"x6", made by National Iron Works. Address "H. S. M., 235 N. Front Street, Philadelphia.

WANTED—A young man formerly holding power of attorney for an importing house with nine years' experience as office man, bookkeeper, correspondent, and familiar with custom house work desires a position. Best of references. Address "H. C. L.," INDIA RUBBER WORLD OFFICE.

WANTED—A party having a rubber factory, suitable for any work, with calenders, mills, stock heaters, presses, moulds, etc., etc. is anxious to have a party join him in running the same. So much money now is in the work that a little help would do lots of good. (Near N. Y. City.) Address "U. S. and I. RUBBER WORKS," Locust Valley (L. I.), N. Y.

WANTED—By a man with twelve years experience, a position as superintendent of factory making either rubber clothing or carriage cloth. Address S. A. M. INDIA RUBBER WORLD.

WANTED—A refining mill, in good condition. Address "M.," INDIA RUBBER WORLD OFFICE.

Second-hand Rubber Washing Machine FOR SALE.

1 WASHER, Rolls 24 in. face x 15 in. diameter.

2 SHEETERS, Rolls 20 in. face x 14 in. diameter.

For further particulars address, REVERE RUBBER CO., Boston, Mass.

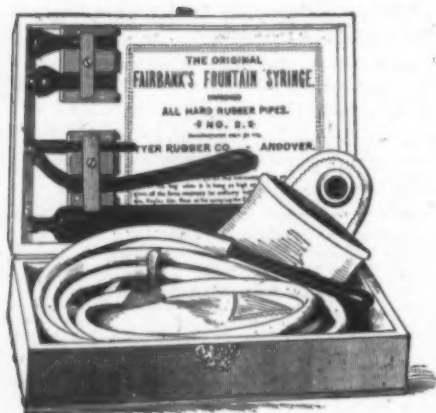
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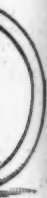
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Perfect
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"TYRIAN" No. 15 ATOMIZER.

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